

SUPPLEMENT.

The Mining Journal, RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

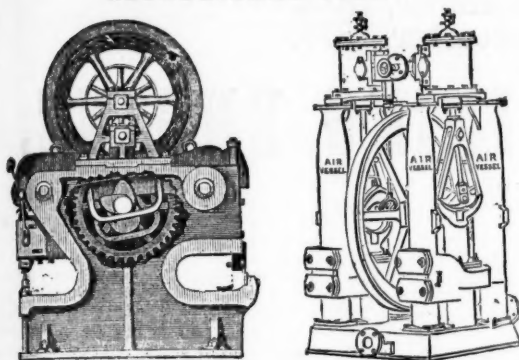
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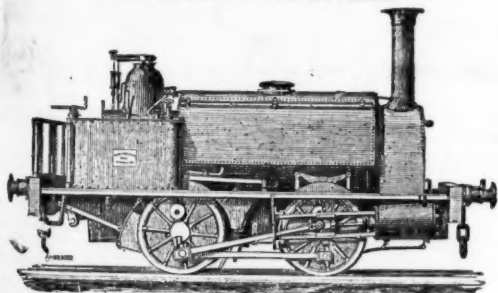
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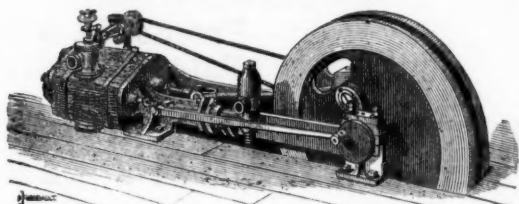
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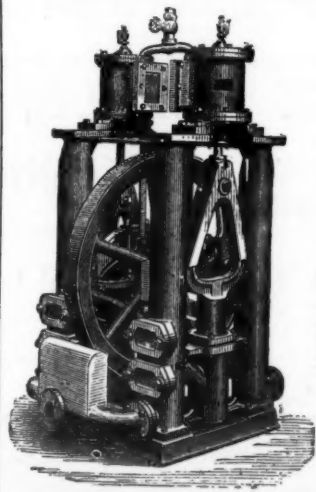
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The SIMPLEST, CHEAPEST, and BEST Machine in the World for
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It has been selected by the Admiralty for their works, and is extensively used at the principal Mines, Collieries, and Quarries of Great Britain, and the Continent of Europe.

"To this invention, which appears to possess several advantages over the machines previously exhibited at Falmouth, the Judges are unanimous in awarding a first-class silver medal" (the highest award).—*Report of the Judges at the Royal Cornwall Polytechnic Society's Exhibition, 1873.*

"The boring machine works splendidly."—W. TORRANCE: *Mid-Calder.*

"For simplicity, compactness, and performance of work, your drill excels all others."—JOHN MAIN: *Crossfield Ironworks.*

"Under the most difficult circumstances, they give every satisfaction."—G. GREY: *Montreal Iron Mines, Cumberland.*

"The simplest and best boring machine."—Capt. WASLEY's letter to the *Mining Journal*, Oct. 18, 1873.

"It gives every satisfaction."—W. E. WALKER: *Lord Leconfield's Iron Mines.*

"The rock-drill I bought of you seven months ago has given me entire satisfaction, and I am convinced that the 'Kainotomon' is the best rock-drill in the market."—P. MCGINNIS: *Strabane.*

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The advantages over other Rock-boring Machines claimed for the "Kainotomon" are—

- 1.—It is much shorter.
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- 6.—It has not one-third the number of parts in its construction.
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- 8.—It is so simple in its construction that any ordinary labourer or miner can drive it, simply having to turn on the motive power and feed the drill.
- 9.—The rotation is compulsory, and regular.
- 10.—40 lbs. pressure only is required to work it.
- 11.—A saving of over 50 per cent. in iron and flexible piping.

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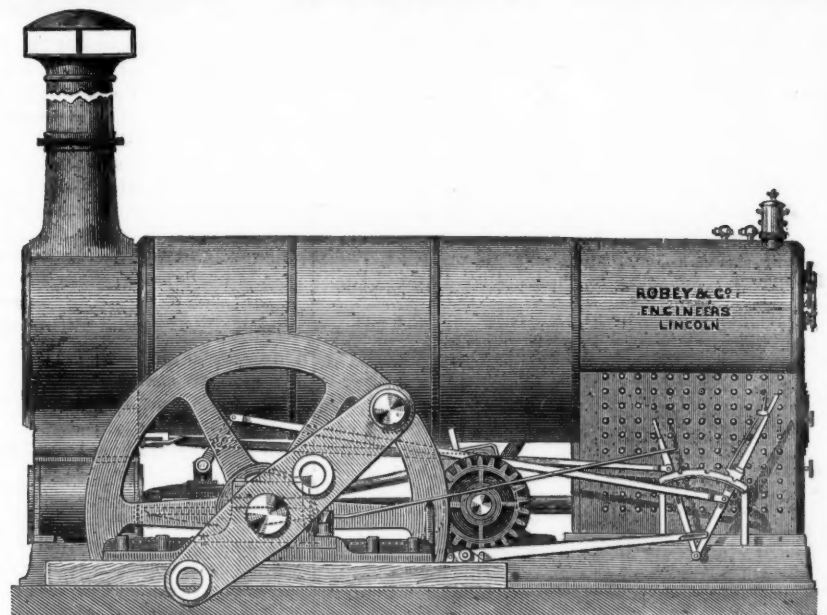
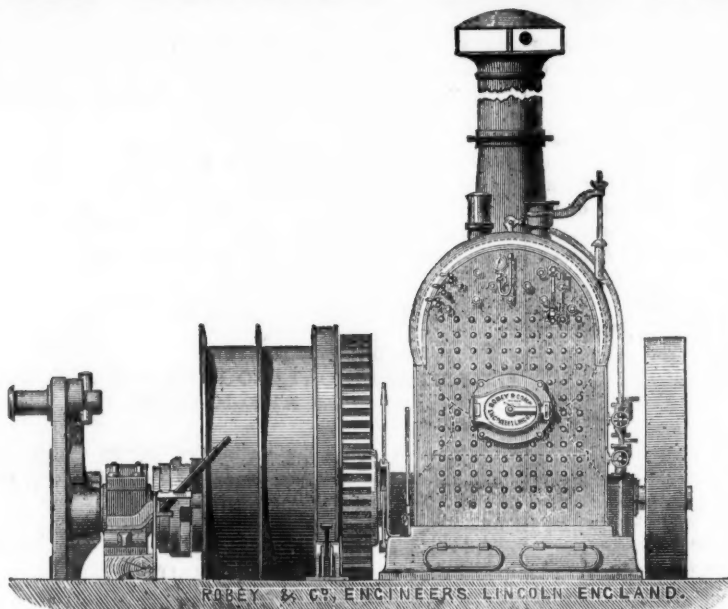
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Dated 16th December, 1873.

Patent No. 4150

Dated 17th December, 1873.

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This New Engine is admirably adapted for driving Flour Mills, Saw Mills, Brick Machines, Pumps, Ore Crushers, Stone Breakers, and all descriptions of Fixed Machinery.

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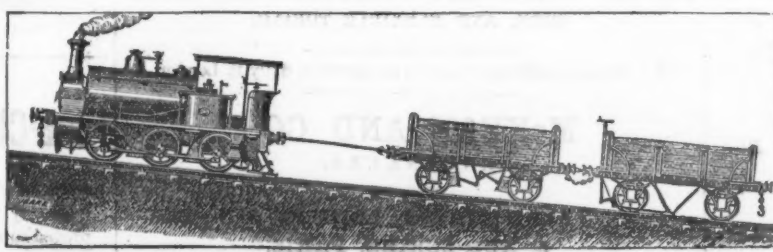
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Original Correspondence.

BLAST-FURNACE TUYERES.

SIR,—My attention has been called to the remarks on "The Working of Blast-Furnaces," with reference to the recent tuyere accident, in the Journal of Sept. 25. Your correspondent's challenge to ironmasters, who believe they have overcome the difficulty and danger arising from tuyere explosions, to make their success widely known, leads me to address you on the subject. I claim to have completely overcome the difficulty by doing away altogether with water jacketed or coiled tuyeres, and substituting a tuyere casing of about the same dimensions as the tuyeres in general use, but open at the outer end, and containing between the walls of the tuyere casing a spray pipe, throwing a sufficient supply of spray or small jets of water on the rear end and sides of the tuyere to prevent it from overheating or burning. More than 50 of these tuyeres are now in use with uniformly satisfactory results; they are more durable than other tuyeres, and are entirely free from risk of explosion. If through long wear or deficient water supply a tuyere should become defective, there need be no haste as to its removal, as no immediate harm can arise; any defect is at once apparent from the open end of the tuyere. We have now had these tuyeres in constant use at one furnace since last November, and since February last we have adopted them exclusively at two furnaces; they are now being adopted at a considerable number of furnaces elsewhere, and at three furnaces, besides those with which I am connected at Darlaston Green, they have been in use for many months. Many furnace managers have seen them at the Darlaston Green furnaces, and no one has ever doubted their safety, nor has anyone who has tried them found them inefficient in any particular. The furnace keepers have far less work than where other tuyeres are in use, and are perfectly free from danger; besides this, the saving in actual cost of renewal of tuyeres we have found to be an important item, and the extremely rare occurrence of a stoppage for tuyering a still more important one. I shall have much pleasure in showing the tuyeres in use to any of your readers who are interested in the matter; and I trust ironmasters will no longer be open to the reproach made in the remarks in the Journal, that we "are compelled to sit down under a sense of an inability to help ourselves in such a matter."

FRANCIS H. LLOYD.

Wood Green, Wednesbury, Oct. 13.

BLASTING IN COAL MINES IN PILLAR AND STALL AND LONG WALL WORK.

SIR,—The case given by "An Engineer," in the Journal of Oct. 2, is, no doubt, a peculiar one. I am sorry I cannot give at the present moment details of actual cases, but expect to do so shortly. Many of the readers of the Journal will be in a position to supply such facts, and they would certainly be both interesting and useful. At present I can only offer some general observations founded on observed facts in my own experience.

The case "Engineer" cites shows us a 5-ft. seam. A clean seam, I think we must infer in the absence of any contrary account—and so far this seam is favourable for pillar and stall work, and quite the reverse for long wall work so far as the absence of material for gobbing, or filling up the space in the goaf, is concerned. A seam with band or soft bottom or top gives ample material for "gobbing," and when this cannot be had the roof is apt to break or to bend down, and thus much cost is entailed in ripping and cutting the main roads. Then, as the seam is 5 ft. in height, it appears that height is sufficient for the horse or engine roads, and, as good pillars are left in the pillar working, no blasting is required to make height in these roads. There is little doubt that in the great majority of instances a much larger quantity of powder is consumed in pillar and stall working than is required for long wall work. In many cases, when the goaf is well packed, the weight is thrown upon the coal, and no blasting whatever is required, as the coal falls when it has been holed at the bottom. In the case of a 3-ft. seam, the consumption of powder in making the main roads is generally pretty equal in long wall and pillar and stall working, while the powder consumed in getting the coal down is trifling in long wall as compared to the powder consumed in pillar and stall working. As remarked above, the case given by "Engineer" certainly appears to be an exceptional one.

M. E.

BLASTING IN COAL MINES.

SIR,—I have read with much satisfaction what you have written upon the blasting question, being assured from my own experience that much more powder is used than is often necessary, or than would be used if mine managers were as determined that only the minimum should be used as they ought to be. I note that in the leader in last week's Journal upon "Shooting-Fast," or nicking, you say—"In the working of coal by the long-wall system the minimum of blasting is required, because sufficient length of the coal can be left pending to make it fall by its own weight, or with a slight application of the wedge at the top." That sentence correctly expresses the gist of the argument in favour of the safest method of breaking down our coal from the position in which Nature has placed it for our use. What you there said in a pithy and practical manner has been something like demonstrated on page 1095 of the Supplement to the Mining Journal of the week before, in a letter of hardly more than a dozen lines, written by "An Engineer." That writer, after quoting the result of the working of a 5-ft. seam by long-wall and by pillar and stall respectively, points out that "for every 12 shots fired in a long-wall working there are 20 fired in pillar and stall."

Now, I am familiar with both methods, and know how economical of powder the long-wall system is as compared with the quantity generally used by the men in the pillar and stall system. I have not the figures to my hand as I now write, but I can say that an experience of half a century in the getting of British coal, and an abundant knowledge of the two methods, convince me that if equal particularity had been observed by other mining engineers in accumulating comparative data "An Engineer's" figures might be followed by other mine managers in most parts of the kingdom.

Indeed, I am prepared to aver that the point might be carried even further. If the collier would well "sprag" his coal, cut it at both ends of his work, and hole it 40 in. under, the whole mass would come down with but little pressure from either wedge or powder. The quantity of slack, or small coal, would be reduced 25 per cent., the roof would require less propping, the roadways would be doubly secure, and the loss of life by falls would be diminished one-third. All this I know from personal experience as a colliery manager. In some districts, where they work pillar and stall, they only cut or nick the coal on one side, and in some not on either; whilst in others they do not hole at all, or if they do it is like the mine of Sally Brame's small servant, "very much make believe."

I am satisfied that the object you have in view in upholding the position taken up so boldly by Mr. Wynne, Mr. Baker, and certain others would be largely promoted if colliery managers who have not, but might, adopt the long wall system would not be abashed at difficulties in its adoption, which I can assure them are often more imaginary than real. I know of no locality where it has been adopted in which it has worked unsuccessfully. Some years ago it was in favour in only a few localities, but its manifest economy is greatly introducing it elsewhere. We all know that in some of the deepest Durham collieries it is successfully applied to the working of their gigantic pillars; that in certain of the Thick coal pits of East Worcestershire it is adopted to remove first the upper and afterwards the lower half of the Ten-yard coal, with considerably increased yield of product and security to life. Methods which unite some of the characters of the pillar system with a certain extent of long wall were at one time extensively practised in Yorkshire, and in some of the North Wales collieries, but not with gratifying results, as the terrible explosions of the Ardesley Oaks, the Darley Main, the Warrendale, and the Lundhill Collieries testify. But excellent consequences have followed in some of the Yorkshire collieries upon the change from this mixed system into long wall pure and simple. I need hardly add that the most regularly laid out varieties of long wall are those of Shropshire, Leicestershire, and Derbyshire, and that others more or less modified to suit

local requirements may be seen in Lancashire, Somersetshire, Dean Forest, South Wales, Scotland, Belgium, and Saxony.

In the new work which is now being laid out in so many parts of the kingdom it may well be hoped that preference will be given to the long wall. In old collieries, where there exist difficulties with which even a resolute mine manager is unprepared to cope, though he may not be able to adopt the long wall, yet much may be accomplished by insisting that the pick and the wedge shall supplement or at least shall aid, the fuse to a larger extent than in many cases now adopted.

MINE MANAGER.

THE INVENTION OF THE SAFETY-LAMP.

SIR,—There is a statement in the Journal of last week to the effect that "George Stephenson had been working his safety-lamp at Killingworth Works before Sir H. Davy made his discovery." These may not be the exact words, as I have not the Journal at the present moment, but this appears to be the meaning of the writer. I believe this to be a great error, my impression being that the wire gauze, which is the foundation or fundamental principle of all safety-lamps, was the sole invention of Sir H. Davy, and all other lamps are merely modifications—improvements they are, no doubt—of this great invention.—*Newcastle-on-Tyne, Oct. 11.*

M. E.

THE INVENTOR OF THE STEAM BLAST-PIPE.

SIR,—The Railway Jubilee at Darlington having lately been the theme of all the leading papers, has caused the wide circulation of the false notion that George Stephenson invented the steam blast-pipe. In a work entitled "The Gentle Life," is an essay on "Success in Life," which contains the following remarkable words "Stephenson borrowed and purloined his ideas." This I am prepared to prove with reference to the blast-pipe. The Royal George, built by Timothy Hackworth, in 1827, was the first engine to which the steam blast was ever applied (see *Practical Mechanics Journal*, 1850 and 1851; and *London Quarterly Review*, January, 1858). In a letter dated July 25, 1828, written by George Stephenson to Timothy Hackworth, speaking of his new engine, the Lancashire Witch, he says, "We have tried the new locomotive engine at Bolton, we have also tried the blast to it for burning coke, and I believe it will answer. There are two bellows worked by two eccentrics underneath the tender." Yet Mr. Smiles would have the world believe that Stephenson used the steam blast in 1817, whereas we find that in 1823 he really knew nothing at all about it.

Now, as to the "purloining." On the day previous to the famous Rainhill trial the engines were privately tested. Stephenson's Rocket could not generate her steam sufficiently fast, while Hackworth's Sanspareil was always in full steam. "How is it," said Stephenson, "that your engine keeps up her steam?" "Oh," replied Hackworth, "I have a little chap inside who manages that"—alluding to the blast-pipe. That night Stephenson secretly sent men to ascertain the make and shape of the wonderful invention, and next morning the Rocket was found fitted with a blast-pipe. This reminds me of another noteworthy fact with reference to the trial at Rainhill. Timothy Hackworth, being at that time engineer and manager of the Stockton and Darlington Railway, had to entrust to others the making of the various parts of his engine—the Sanspareil. The cylinder which burst was cast by Stephenson; the metal where the fracture took place was less than 1-16th inch in thickness. In the name of justice I ask you to publish these facts, which are well known to all engineers acquainted with the early history of steam locomotion.—*Newton Abbot, Oct. 5.*

T. HACKWORTH.

COPPER MINING ON LAKE SUPERIOR.

SIR,—Lake Superior as a copper mining district shows a balance against itself of \$2,000,000 of assessments called in over and above dividends declared. To offset this there is all the machinery on the different mines, paid for and included in the above account:—

Name of mines.	Hoisting engines.	Pumping engines.	No. of heads stamped.	Rock engines.	Makers' names.	In 24 hours.
Star Mine	1	—	1	16	Gates	35
Eaton	1	—	1	15	"	32
Clark	1	1	1	14	"	30
Empire	1	—	—	—	—	—
Resolute	1	—	—	—	—	—
Mandoh	1	—	—	—	—	—
Pennsylvania	2	1	—	48	Gates	100
Delaware	1	1	1	48	"	100
Amygdaloid	1	1	1	48	"	100
Central	3	1	1	30	"	65
Copper Falls	2	1	1	3	Balls	250
Garden City	1	—	1	24	Gates	55
St. Clair	1	—	1	8	"	20
Humboldt	1	—	—	—	—	—
Boston	1	—	—	—	—	—
Cliff	3	1	1	36	Cornish	75
South Cliff	1	1	1	12	Gates	30
North American	1	—	1	12	Wise	30
North Cliff	1	—	—	—	—	—
Allouez	2	1	1	2	Balls	150
Calumet and Hecla	4	2	2	7	"	600
Osceola	2	1	—	—	—	—
Schoolcraft	2	1	1	36	Gates's Imp.	90
Franklin	1	1	1	4	Balls	300
Pewabic	1	1	1	5	"	250
Concord	1	—	—	8	Gates	15
Quincy	2	—	1	64	"	130
Sheldon and Columbia	1	—	1	2	Balls	175
Isle Royal	2	1	1	16	Gates	35
Houghton	2	1	1	36	"	75
Atlantic	2	1	1	4	Balls	300
Henwood	1	1	—	—	—	—
Bohemian	1	—	—	—	—	—
Arzet	1	—	1	10	Hodges	25
Ridge	1	1	1	12	Gates	25
Toltec	1	1	1	10	Hodges	25
Evergreen Bluff	1	—	1	12	Cornish	25
Ogama	1	—	1	8	Gates	20
Flint Steel	1	—	1	24	Cornish	55
Rockland	1	—	1	16	"	32
Minesota	4	1	1	24	"	50
National	3	1	1	24	Hodges	50
Victoria	1	—	—	—	Engine for stamps	24
Norwich	1	—	1	12	Gates	30
Madison	1	—	1	12	"	30
Phoenix	2	1	1	30	Atmospheric	70
Petherick	1	—	1	8	Gates	20
Albany and Boston	1	1	1	24	"	55
Nonsuch	—	—	—	8	"	20
Carp Lake	—	—	—	8	"	20
Total	68	25	41	739		3874

The above table shows how many hoisting and pumping engines there are in this copper mining district; the number and kind of stamps; and the number of heads at each stamp; also the duty of each stamp in 24 hours, and the tonnage of rock crushed. No doubt but I could ascertain the cost of all this machinery, but time will not permit just now. Suffice it to say, however, they are all made of the best material, and in size and power they are all sufficient for the requirements of the different mines. When I say several of those engines are hoisting and pumping at depths from 100 to 280 fms., and having shown you the duty each and every stamp can perform in 24 hours, I think you will agree with me in saying the \$2,000,000 as a balance against Lake Superior mines is not only cancelled, but a large balance stands in favour of the said mining district. True, I have not figures to show what any other copper mining districts have done for its stockholders, but it strikes me very forcibly, as I have previously said, that Lake Superior, with all its faults, is Number One. I have shown you there are 68 hoisting engines, 25 pumping engines, 40 stamps, and in all 739 heads, which are ready and able to crush 3674 tons of rock in 24 hours. To get at this I have taken the utmost care, fully believing I am correct, as I have had opportunities of seeing most of those again and again on duty. Before I get through I will endeavour to lay before you the financial condition of some of these mines for 1873 and 1874.

Portage Lake, Michigan, Sept. 6.

A MINER.

THE RICHMOND CONSOLIDATED SILVER MINING COMPANY.

SIR,—Mr. Probert was in this place weeks before the financial crisis occurred, but he does not appear to have acquainted the directors on the other side that the bullion agent would or could not make further advances against bullion. This must have been known

to Mr. Probert for some time, meanwhile the shares appear to have been "jumped upon" by some one on your side. X. Y. Z. San Francisco.

RICHMOND MINING COMPANY.

SIR,—As explanatory of the delay in the payment of the Richmond Mine dividend, permit me to make known to its shareholders, through the Journal, the following extracts from a letter to the *New York Times*, dated Sept. 30, from its correspondent in San Francisco:—

"Since my last we have been, as it were, 'laying up,' awaiting the resumption of the Bank of California." "So intimately and generally were the business connections of individuals and enterprises associated with the bank, or its ramifying branches and correspondents, that it is almost impossible for the community to make a move towards the restoration of business until the bank re-opens its doors." "Collecting is impossible, as every man who owes you a bill has his money locked up in the bank." "I have seen men rushing along the streets frantically imploring a loan of coin to meet notes due in the bank, with a bar of gold on their shoulders of twice the value to offer as security." "Everything is prosperous, and yet money cannot be had." "We ship it away as rapidly as it is produced, and get nothing in its place which will circulate." "It is really a suspension of the whole community." "You may set it down that all California has merely suspended, not 'busted,' for the suspension of the Bank of California was like an immense mining blast, shaking all the country round to its centre." "The Bank of California will resume, and simultaneously with the bank the community will resume. Flood and O'Brien's New Bank of Nevada will commence about the same time. The Trust Company will also resume then, and the Consolidated Virginia Mine is sending down nearly \$50,000 a week, and other mines as much more. Then Messrs. Lazard Freres, for a long time heavy importers of foreign merchandise, will establish a Six Million Bank, and, on the whole, I do not see anything bad in the prospect."

Seeing, Sir, from the above that individuals have been unable to raise upon a bar of gold half its value, it is not surprising that the bullion agent of the Richmond should have found it temporarily impossible to advance on the gold, silver, and lead consigned to him for sale.—Oct. 13.

A RICHMOND SHAREHOLDER.

NEW MOTIVE POWER.

SIR,—I am much interested in the letter of your correspondent, "J. C.," in the Supplement to the Journal of Sept. 18, but it is disappointing to find it has elicited so little response from other contributors. Not being skilled in mechanics, I find it difficult to comprehend the working of the machine from "J. C.'s" description. The ultimate and most important result is, however, plain enough—to dispense with the use of fuel or heat, and to convert the dead weight of hydraulic pressure into rapid motion. Mr. John W. Keely, of Philadelphia, some time ago announced a machine of his own construction for the same purpose, the motive power of which is a vapour generated from cold water and air. It is thus described in the *New York Times*:—

"The apparatus by which the power is made is termed a generator or multiplier, and the vapour is then passed into a receiver, and thence to the cylinder box of the engine, where it drives the piston, and sets the engine in motion. The generator is about 3 ft. high, made of Austrian gun metal, in one solid piece, and will hold about 10 or 12 gallons of water. It is 4 or 5 in. thick, and made to stand the very heavy pressure of 30,000 lbs. of vapour to the square inch. The inside is composed of a number of cylindrical chambers, connected by pipes and fitted with cocks and valves. The reservoir is about 4 in. in diameter, 40 in. long, and is connected with the generator by a pipe, which is about 1 in. in circumference on the inside, with a bore of about one-eighth of an inch. Connected with both generator and receiver is a stand pipe of brass, about 2½ in. in diameter and 3 ft. high, having a spherical chamber at the bottom made in two parts by flanges, and connected to the pipe uniting the generator and reservoir. The vapour generated in the multiplier is conveyed to the reservoir, which contains numerous pipes, and from there by a feed pipe to the engine. The engine is of peculiar construction, but the inventor claims that the vapour can be attached to any ordinary engine now in use with very slight alterations."

Mr. Keely does not intend to keep his light under a bushel. A company has been formed to work his invention, and as soon as letters patent can be taken out in all the civilised countries of the globe a grand start is to be made. The first public exhibition is to be on the Pennsylvania Railroad, when Mr. Keely proposes to take a train from the Quaker City to New York and back. He is to have the generator stationed at West Philadelphia, and by filling the receiver which will accompany the engine sufficient vapour will be procured for the double journey.—Oct. 12.

W. H.

THE WATER QUESTION—SURFACE DRAINAGE.

SIR,—Doubtless some of your correspondents of a critical nature will endeavour to dispute the appropriateness of re-introducing this subject, which they will say has been again and again brought forward and failed to be noticed. Some months ago a discussion at a meeting of the Miners' Association gave rise to several letters in the Journal, and several advocates were found for the system, no one dissenting as to its utility, the matter of cost was the sole obstacle. At that time one of your correspondents estimated the cost at 10¢ the acre. This, I think, is rather above than under the necessary rate, and I can see no reason why an acre should not be effectually drained at 8¢, or even 7¢, and then the cost of draining the great mining district of Mid-Cornwall—the Camborne and Redruth district—would be about 50,000¢. This is a very large sum, but nearly 15,000¢ are spent annually in water pumping in the district, and we may safely estimate that half this would be cut off if the drainage system were introduced. The apathy of our Cornish mine agents is distressing. Every time they go into a mine they hear torrents of surface water pouring into the workings, and yet will not attempt to remedy it. In the summer, when all is in proper order, they laugh at these schemes, but when they find hundreds of feet of water in they begin to see that something must be done. Why does not some energetic mine purser or manager take the "bull by the horns," and solicit subscriptions with a view to getting the ground surveyed by a competent civil engineer, and an estimate of cost prepared, in order that all doubt may be cleared up? Mr. Butlin, in his paper read before the Miners' Association, appears to take the estimate of "N. B." before referred to, and before long we hope to hear that the Miners' Association has taken the matter in hand. Oct. 11.

A CORNISHMAN.

THE FLINTSHIRE LEAD DISTRICT.

SIR,—Having given a brief geological description of the district, and the chief characteristics of the principal rich mines hitherto worked, with those of the Talargoch Mine as the first of the series, commencing from the northern extremity, I will take the latter mine as in some measure typical of those in succession southward, with some little information as to their past productiveness, and following in the respective order.

The TALACRE MINES will first claim attention. These have been very extensively worked in former times, both in the chert and limestone measures, but more particularly in the former, which at this point covers the limestone in the northern portion to a great depth. No reliable records are obtainable as to the profits realised from these workings, but, judging from the extensive range of them, there is no doubt they have been very considerable, and a short run of ore discovered in the chert measures in 1849 produced 3000 tons of ore in three years alone. Some hundreds of tons of ore have also been found in the gravel on the back of the veins.

Next come the TRELOGAN MINES, in the chert formation. These mines have been extremely rich and productive, having returned 600 tons of lead ore monthly, besides blende and calamine. The most productive portion of the workings has been above the water level, and the chief riches extracted with very little outlay or cost of raising, in consequence of the bodies of ore lying compact in great masses, particularly under the shale. The only expense incurred by the lucky proprietors during the bright days of prosperity being for the erection of a windmill for pumping and draining the mines, and also for crushing the ore. It may be truly said of this property that it was at one time almost "a mountain of mineral wealth."

The HOLWAY MINES, to the north-west of Holywell, are also principally in the chert formation, where past riches have been most abundant. It is supposed that this mine has realised about 250,000¢ in profits from these measures alone, but the veins are also extensively worked in the limestone formation, which has also realised considerable returns even within recent periods. This portion of the district is heavily watered, and extensive steam pumping machinery has been required during the days of their profitable development.

The KILMOREY MINE so far has been productive in the chert only to any appreciable extent, the main vein in the limestone not being yet discovered. This property first became rich by opening

out a quarry at the back of the town of Holywell, and was prosecuted by means of a small pumping engine, during which period it proved eminently remunerative.

The MILWR MINES, in which are now included the present West Milwr, have up to within a comparatively recent date been worked almost exclusively in the chert formation, and it is difficult to form an adequate conception of the vast riches and productiveness of these measures in this particular locality. The returns from these mines reached 400 tons of lead ore monthly, besides blende and calamine; and, as a single instance, it may be mentioned that the produce of one vein gave in clear profits upwards of 128,000*l.* in nine years, when ore was selling at from 7*l.* to 8*l.* per ton, and the royalty then paid being as much as one-eighth, contingencies which if preventable, or worked under present favourable auspices, would probably have raised the amount of profits to 500,000*l.* Explorations are now being carried on to lay open the veins in the limestone, and as they have already proved exceedingly rich in a range of mines all the way to the west—Prince Patrick and Grosvenor, the former being very rich, and has been so for some considerable time, the latter only just now opened.

The MAESLYGAN MINES, and St. George's Fields, are also in the chert formation, and the riches of the before-named Milwr Mines are even exceeded in this property, which may be said to eclipse all other mines in productiveness for the extent of the ground worked. It is said that this one vein has realised as much as 500,000*l.* in profits. A glance at the old workings and ground would certainly convince anyone that they must have been literally prodigious. Some important mines are now being worked on the course of this range in the limestone to the west—Prince Patrick and Grosvenor, the former being very rich, and has been so for some considerable time, the latter only just now opened.

The ST. PATRICK MINE adjoins the Maeslygan, before named, and comes directly between this and the celebrated old Halkyn Mines, which will next be spoken of. The situation of this property alone will probably be considered a sufficient guarantee of its future success, but, if anything should be wanting, it may briefly be stated that four productive main lodes have already been most extensively and profitably worked, even at some considerable distance to the west of the property, which when cut in these measures it may be imagined with what increased strength and riches they are likely to be found. A good engine-shaft has been sunk 135 yards deep, preparatory to driving north to intersect the east and west veins, and it is a most remarkable circumstance that this depth is attained in these measures without any water to contend with, such as is the case with nearly all the mines similarly located in the same bearing measures, thus effecting an enormous saving in the future development. A further advantage of considerable importance is also gained by the great Pant-y-go cross-cut being found in the shaft, offering unusual facilities for cross-cutting into the veins, both as to amount expended and time required; the cross-course, moreover, coming direct from the Pant-y-go Mine (which will be hereafter mentioned, in conjunction with the Halkyn Mines), considered the richest spot ever known in this limestone formation, gives additional grounds for the expected great results which are sure to follow this enterprise. It is also worthy of special remark that this property is essentially in the true belt of the Flintshire mining district, and that it is all in virgin ground, both in the limestone and in the chert formations.

The HALKYN MINES are sunk in the chert and limestone formations, both of which have proved immensely rich. From four veins alone in the former 400 tons of lead ore were formerly raised per month for many years, under similar circumstances as other chert deposits. The Pant-y-go, in the limestone, has the character of being the richest known. Some records are now, I am told, in existence, showing the vast sums paid in royalty and otherwise realised by the Grosvenor family from this portion during some generations past, and it is proverbially known amongst the mining community in the locality.

The RHOSMOR MINE has been discovered comparatively within a recent date, and its antecedents are now pretty generally known. It is in the limestone district, and has made great returns, but is, unhappily, so heavily watered that its abundant riches in depth now have to await the completion of the Halkyn drainage scheme to class it amongst the first dividend mines of the day. Its present depth of shaft is 156 yards, and the Halkyn tunnel will drain it 20 yards deeper.

The HENDRE WOOD MINE is in the limestone. This mine is also heavily watered, and consequently is only worked 105 yards deep. The Halkyn tunnel will also drain this mine nearly to the bottom. Although so shallow, it has returned 30,000 tons of lead ore during the time it was formerly worked by a private company, and who realised regular dividends, besides laying out large sums in extensive machinery required for drainage, &c.

The MOLD MINES, most extensively worked in the limestone, and from which 400 tons of lead ore per month were raised continually for many years. These workings have been carried from 180 to 230 yards deep, also very heavily watered, and required the united action of eight large Cornish pumping engines during the time they were in active operation. A discovery has recently been made in the locality which is likely to restore animation in this quarter, and others of great promise are contemplated. Amongst these I may mention Rhyd Alyn, in which an important discovery has just been made.

The CATHOLE and GWERNYMYDD.—Between the Pant-y-buath (the southernmost portion of the old Mold Mines) and this mine an important tract of mineral country would appear to remain undeveloped. A mine called the True Blue has been commenced under very favourable circumstances, and is now about to be developed. A little time and outlay, it is considered, will bring this property into a prominent position as a great success. The Cathole and Gwernymydd are also in the limestone, and compare with the other great mines of the district, the former being once a portion of the old Mold Mines, the returns and profits during the time of their prosperity being large and regular. A continuous run of ore was here laid open 80 yards long, from 2 to 4 feet wide, solid, and a solid piece of lead ore of 30 tons in weight was priced out at one of the stopes by a common iron bar used in the workings.

MAESYSAFN.—Between this and the before-named mine is the old Coed Cyrric, which produced a good run of ore near the surface. The Maesysafn belongs to the same class as the other old mines of past riches. It has been extensively and profitably worked during many years, yielding from 100 to 200 tons of ore per month, and has been prosecuted vigorously, even under the deterring effects of deluging floods after heavy rains, bringing with them immense quantities of sand, very trying to the pumping arrangements for drainage.

The CATHOLE and PANTDU, also in the limestone, have likewise been exceedingly rich. Some idea of the value of this property may be gleaned when it is stated that one portion of the main vein for 100 yards in length gave the owner of the minerals 70,000*l.* as a royalty upon ore raised; other portions being extremely rich.

The BELGRAVE is another of the old well-known group which has contributed its portion to the general wealth; but there are no certain or authentic accounts by which a fair estimate of its value can be ascertained.

The WESTMINSTER MINES, in the limestone, have been wrought on a most extensive scale, and the successes in their development have been continuous for a long period. The resources of this property must have appeared almost inexhaustible during its best days, and in the old records of the sales of ore, which formerly were held at the towns of Holywell and Mold, it may be seen that from this portion of the district the regular produce received material aid for ages past, having returned from 150 to 250 tons of lead ore per month.

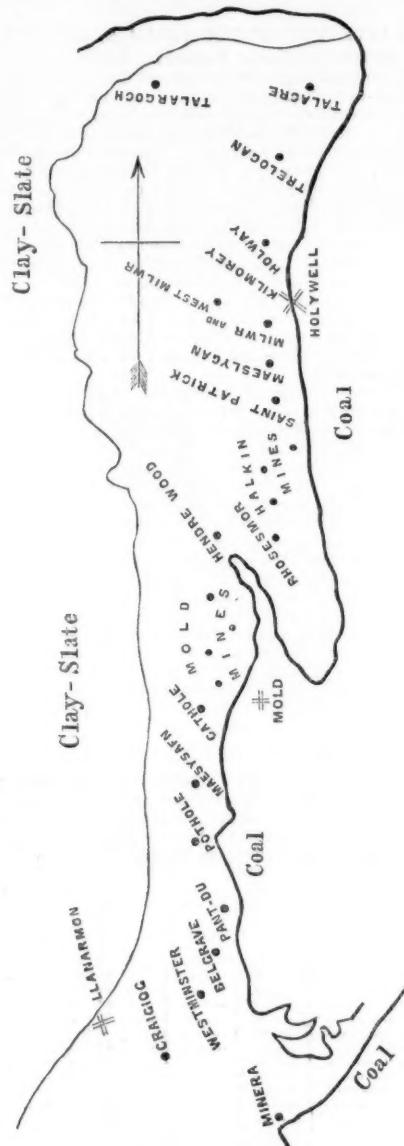
The CRAIGIOG has only had a very partial trial, and mostly at the surface, but sufficient has been done to convince any practical miner that an abundance of mineral wealth lies hidden beneath. A considerable quantity of ore has already been taken from the upper workings, and quite sufficient is seen to indicate what must be the result of further explorations. A day-level has been commenced, which will drain the country for more than 100 yards in depth,

where three main bearing lodes are known to form a junction. On one of these lodes a course of ore has been laid open, for some fathoms, at 30 yards deep, and the same run has been driven upon in the 45 yard level. The first level by being continued 60 yards will reach the junction before named. A judicious outlay will, no doubt, establish this mine as one of the class of which I have endeavoured to give a brief history in this letter being in precisely the same measures, bearing in every respect analogous comparison.

MINERA.—Of this mine I think little need be said, as its capabilities are so recent and fresh in the memory of the existing mining generation. A mine that will return from 40,000*l.* to 60,000*l.* per annum in profits for its fortunate shareholders needs no further comment; and I will conclude my remarks by hoping what little information I have given will stimulate a just appreciation of this flourishing class of mines.

I have now concluded a brief account of the past history of the mines situated in what is known as the Flintshire lead district. It is my intention in the future, if agreeable to you, Sir, and of interest to your readers, to send you an occasional account of the mines now being worked, and of the success or otherwise attending their development.—Coleman-street, London. A. W. THOMAS.

ROUGH HAND SKETCH OF THE FLINTSHIRE MINING DISTRICT.



DOWSING AND DIVINATION.

SIR.—After eagerly scanning the pages of the *Mining Journal* for the last few weeks, and seeing nothing further from your able correspondent, "N. B.," I am afraid (unhappily for us) that our old friend has at last given us the cold shoulder. I am very sorry for this, Mr. Editor, it seems almost like parting from an old friend. I was beginning to feel a great respect for "N. B.," and thought that he would, doubtless, prove to be a type of the true born Englishman, proving the truth of what the French said at Waterloo—that the English never knew when they were beaten. Perhaps, however, I am premature in my judgment; it may be that our scientific friend, after all, has merely retired for a time to draw breath, to sharpen his weapons, buckle on his armour, and prepare for the last grand effort, when he will return, like a giant refreshed, and charge us with redoubled fury and vengeance, cutting and slashing right and left, carrying all before him, and so continue on his victorious career until he alone remains master of the field. Grieving as it is to think of the loss of our old opponent, "N. B.," it is still comforting to think that the redoubtable champion of the truth, Mr. Spargo, is still spared to us; and not only does it appear, to use a vulgar phrase, that he is still alive and kicking, but from his letter a fortnight ago one would think from the manner in which he disposes of his two antagonists, "Scrutator" and Mr. Welton, that he is full of life and vigour. I shall make no comment on this letter, believing that neither "Scrutator" or Mr. Welton would thank me to interfere in their concerns, as doubtless both of them are fully capable of holding their own even when opposed to the sage philosopher, Spargo. I pass on, therefore, to the letter of your able correspondent, Mr. Kneebone, which appeared in last week's *Journal*. In order to condense as much as possible I beg to refer your readers to the second paragraph of his letter, in which he tells us of an experiment which he had witnessed about 23 years ago.

Now, what can any reasonable man think of such an experiment as this was? Why was not the experiment carried out in a fair and impartial manner? If they expected trickery or collusion between the dowser and his party why not have made use of (say) from 40 or 50 hats, or more if they thought proper, for the experiment, and then given the dowser a fair trial, to see whether he could tell under which hat the watch was placed? Surely this would have been fair to all parties, and a much more honourable way of carrying out the experiment than the manner in which it was done? We are told that "one of the miners had cleverly changed its position while the others were making their bets." Now, instead of this being cleverly done, I think it was sheer ignorance on the part of the man who did it, as he ought to have known that by changing the watch from one hat to the other he would thereby defeat the object of the experiment, seeing that each hat would be about equally charged with the emanations or effluvia from the watch unless the influence was removed. Mr. Kneebone goes on to say—"I have seen many trials quite as ridiculous in their termination, but I never knew an instance come under my personal observation which led directly or even indirectly to the discovery of a bunch of ore by the dowsing rod." May I suggest that perhaps Mr. Kneebone has never seen the great desert of Sahara, still I think it would be idle

on his part to argue that the desert has no existence. Our grandfathers would not believe that coaches would ever run without horses, but we know they will do so. Our correspondent may not have seen our beautiful Houses of Parliament, but still we have seen them, and know that there is such a building; and, if Mr. Kneebone has any doubt on the matter he has but to come where they are situated, see and examine them for himself, and forever set his mind at ease that they are a reality and not a delusion. And so with regard to dowsing and clairvoyance. If Mr. Kneebone is really an earnest enquirer, and willing to learn the truth for himself, he has only to go to those who really possess the gift to learn the truth for himself. Is it fair to assume, I would ask, that because all cannot walk the rope equally with Blondin he himself cannot do it?

Among those who practise dowsing, &c., there are no doubt many impostors, and to save the trouble of detecting and exposing them do as you would in any other of the affairs of life—go to those who are known, and who have been proved to have the gift, and if you have any doubt on the matter test and prove them for yourself before making use of their knowledge. All men are not alike; every rag and bobtail is not fitted to be Prime Minister of England; there is but one Gladstone, one Disraeli, one Bright. All men differ more or less from another, each possessing knowledge in a greater or lesser degree; and so it is with regard to dowsers and clairvoyants. Some possess the faculty in a very low degree, others in a higher degree, but, taking the whole population one with another, there is perhaps but one in ten thousand that possesses the faculty of clairvoyance in an eminent degree. This accounts for the repeated failures of many of these so-called dowsers and clairvoyants; they fail simply because they do not possess the gift, although they make great pretensions of having it. Mr. Kneebone further says—"It is not so much to find lodes alone that we require, seeing we cannot command the capital to work one-half of the known productive lodes, but to find where the ore is deposited in them, and how best to extract it. In this, however, dreamers and dowsers appear to come to the same conclusion with other men—that, although they have the dowsing rod, Jacob's rod, and their great grandmothers, and other departed worthies down to Adam, to aid them, they cannot tell." Here Mr. Kneebone is quite wrong. According as I read "Jacob's Rod" the author professes to be able to give all this information, and not only to tell where the ore is deposited, but also its depth, quality, and the best manner of working it. Whether Mr. Welton is capable of doing this or not is quite another thing, but that, certainly, is the idea he conveys in his work. This, in my humble opinion, is the very essence of the whole matter, and the most important of all to shareholders and mine proprietors, and, consequently, the very point that ought to be most keenly and closely scrutinised in order to see whether it will stand the light of day. Perhaps some of our able correspondents will give their opinion on this point. For my part, I shall watch most anxiously to see this part of the subject discussed. FAIR PLAY.

MINING IN CORNWALL.

SIR.—While on a visit to Cornwall a few days ago I was surprised to see so many mines standing idle, with engine-houses and tall chimneys dotted over the country, bespeaking a time when all seemed to have been full of activity and prosperity. Now, one would be inclined to ask what was the cause of such a state of things. The reply would be—low price of metals, and the unsettled state of the trade of the country. What, then, if the price of metals improved, and the general trade of the country returned to its usual activity, would there be any chance for a resuscitation of some of these mines? That is, the self-paying and progressive ones, such as those of the Scorrier district, including Great Wheal Busy, &c. It is the firm opinion of many practical men that if these mines were united together, and worked under one powerful company, it would be a grand thing, and an excellent investment for capitalists. I find there are a few good old mines still in existence in the county, such as Dolcoath, Tincroft, West Tolgus, and a few others. There are a few promising young ones cropping up, such as Unity Wood, West Poldice, and Cathedral. In the latter I was pleased to see some splendid piles of copper ore being drawn to surface, which looks healthy, and affords a promise of becoming a good property. Parys Mountain Mines, Anglesea, Oct. 14. T. MITCHELL.

NEW CENTRAL SNAILBEACH MINE.

SIR.—Can any reader give me some information as to the present state of affairs of the New Central Snailbeach Mining Company (Limited)? The directors not having published any account of their proceedings since February, 1874, I am induced to ask is there a screw loose, and if so, what about liquidation? I hope some shareholders will notice this in your next *Journal*, as the property no doubt is becoming every day more and more deteriorated in value, and I would ask would it not be better and more advantageous to the shareholders to dispose of one of our mine and valuable plant before all things get worthless? A SHAREHOLDER.

[For remainder of Original Correspondence, see to-day's *Journal*.]

THE MINERAL RESOURCES OF THE SOUTH-WEST OF IRELAND—No. XXV.

[FROM OUR SPECIAL CORRESPONDENT.]

KENMARE DISTRICT, COUNTY KERRY.—THE ARDTULLY MINES (Continued).—Before operations commenced under the Kenmare and West of Ireland Company the shares were at from 2*l.* to 3*l.* prem. The preliminary expenses it appears amounted to over 5000*l.* Some 3000 paid-up shares were reserved, and, to repeat the old story, by the time the mine was got in working order the capital had vanished. In those days the public had not the benefit of liquidators, and the directors, being more liberal than boards of directors generally are, when they found that things were looking queer, very generously paid a dividend of 1*s.* 6*d.* per share (1500*l.*) to the shareholders out of their own capital, and thus the Kenmare and West of Ireland Company died a natural death. There is scarcely a doubt, however, that if the capital subscribed had been applied to the working of the mine it would be going on and a good concern to this day. The Roughy Valley, in the Lansdowne property, is commanded by water-power sufficient to drive any amount of machinery, and as Sir Wm. Petty successfully worked the mines of this valley over 200 years ago, it may be safely inferred that with modern improvements and appliances they may now be made to yield a large amount of wealth. About a mile to the south of Roughy Bridge, and 500 ft. above the sea level, there is a remarkable isolated mass of limestone resting on the clay-slate formation, and locally known by the name of "Cloghvorragh." The arbutus and other flowering shrubs grow out of the fissures of this remarkable block of limestone; whether floated to its present position during the glacial period on an iceberg must remain matter for conjecture. There is no limestone in the mountain above it, and the limestone formation of the Roughy Valley is 500 ft. below it. North of the Roughy Bridge, and nearly opposite Cloghvorragh, there is a remarkable isolated mass of greenstone, resting also on the clay-slate, called "Carrigaheen." This greenstone boulder of many tons must have rolled from a considerable distance, as there is no rock of the same character within a distance of many miles. The limestone formation west of Kenmare, at the north side of the river, continues about three miles, when it passes into and under the sea. At Tubrid, which adjoins Kenmare to the west, there are remains of ancient mines, these lodes being a continuation from the Roughy Valley. In the debris from the old works there may be seen specimens of galena, blende, iron pyrites, ferruginous quartz, &c. These lead lodes are traceable in the limestone still further westward to Reen, where there are ancient excavations, and as rich specimens of galena are found in the debris there can scarcely be a doubt if these works were opened in a proper manner but they would yield good profits upon the capital invested. It is an ascertained fact that the mines of the Roughy Valley were worked over 200 years ago—this is, the surface was skinned from Reen to Kilgarvon, a distance of 15 miles. We may rest assured that the ancient miners never made miles of surface diggings for nothing. They dug as deep as they could go without the aid of machinery, and followed the line of the lodes for miles. It may, therefore, be fairly assumed that it would be a safe investment to resume operations where the ancients left off.

About 16 miles to the west of Kenmare we come to the village of

Green, near which is a bed of oysters justly celebrated for size and quality. A little beyond Green is Ballybog—"The Land of Bogs"; there is sufficient peat there to supply a whole country, and as it is near the Kenmare river there is every facility for shipping the produce. Proceeding west by a romantic road, close to the beautiful harbour of Kenmare, we reach West Cove, a snug little harbour and coast-guard station, north of which the mountain range rises to a height of 2134 ft. above the sea level; away up in the side of this mountain 1640 ft. there are lodes, consisting of quartz and fine yellow ore, of great size and breadth. A large cross-course intersects these lodes near St. Crohan's Hermitage, which is a cave hewn out of a fine quartz lode, intermixed with yellow copper ore. The honour is, therefore, due to St. Crohan of being the discoverer of the copper mines in those mountains. The lodes near St. Crohan's Cave appear likely to produce a large quantity of ore, and may be intersected at a great depth by means of levels driven into the mountain on the cross-course. An adit was driven a few years since to within a few fathoms of the main lodes, and in a short time they may now be intersected in a favourable spot near St. Crohan's Cave. At the western slope of the mountain, and overlooking Derrynane Abbey, these great lodes crop out at the surface, and from openings made I have seen large lumps of yellow and purple copper ore. In 1852 a company was formed for working this property, under the name of Hartopp and West Cove Mines. A considerable amount of capital was paid up; in the prospectus, however, the reports of the former manager were used without his permission, which were of a favourable character, and consisted of extracts from letters written by him to Mr. Hartopp's agent. An angry discussion followed in the *Mining Journal*, and the result was the promoter of the company, being exceedingly annoyed, returned every shilling to the subscribers, since which the mines have remained idle. Ballydoney Bay and the Berehaven Mines are just opposite West Cove. Prof. Warrington Smyth has described the Berehaven lodes at surface as by no means attractive to the eye of the miner, and consisting of wild hard quartz. St. Crohan's lodes consist of quartz, strongly impregnated with rich copper ore, and there is no reason why they should not become as productive as the Berehaven lodes.

Meetings of Public Companies.

FULLER'S REEF GOLD MINING COMPANY.

The third ordinary general meeting of shareholders was held at the offices of the company, Lombard-street, on Tuesday, Mr. R. L. JONES in the chair.

Mr. J. BROOKE BOOTH (the secretary) read the notice calling the meeting, and the directors' report was taken as read.

The CHAIRMAN said he had very little to add to the information contained in the report which had been circulated amongst the shareholders, but he would draw attention to some of the paragraphs in the report. The first paragraph referred to the fact that the present directors were appointed in November last for the purpose of reducing the heavy expenses of the company, and of endeavouring to discover who, if anyone, could be made responsible to the shareholders for what was considered to be a very serious difference, even bearing in mind the speculative nature of gold mining operations, between the statements made as to the value of the property and the results obtained in working. There were certain statements made in a report in which it was stated that there were 100 tons of grass, and that the mine was showing free gold, whereas when the manager reported upon it he stated it was exhausted, and that if there was gold-bearing quartz it was exhausted. The directors thought it was not worth continuing the services of Mr. Munday at a salary of 7000 a-year, they, therefore, dispensed with his services, and appointed another manager at a salary of 2400 a-month. As regarded the third paragraph in the report, he regretted to say that, owing to illness, the signature of one of the members had not been obtained to the agreement for the compromise with the vendors, but there was no doubt that as soon as the gentleman to whom he had referred was sufficiently recovered the agreement would be signed and completed. As regarded a dividend, the directors stated that they could not promise a dividend at a very early date, but from the reports which had been received from the mine the board believed that with careful and judicious working the company would very shortly clear its expenses, and possibly a dividend would also be obtained. There was one word in the report which was, perhaps, a mistake; it stated the ore brought to grass had shown an average yield of "about" 4 ozs. of gold to the ton, but, perhaps, it would be safer to say "4 ozs. of gold to the ton." The directors stated in the report that a very considerable outlay was necessary before a very large quantity of this auriferous stone could be raised and brought to mill, and they added, "Before this outlay is incurred your directors are testing the continuance of the stone of this description to a depth equal to that of the level proposed to be continued to meet the present workings." When Mr. Gilchrist and Mr. Weston asked permission to drive the 80 ft. level it struck the directors that if they drive the 80 ft. level so as to meet the Welsh winze they might not find auriferous gold, but if the yield of gold was traced some 20 or 30 ft. further in a downward direction the adit would be vigorously pushed forward, and when this undertaking was carried in far enough to meet the shaft now being sunk the expense of raising the stone from there would be reduced more than half. In the next paragraph the directors stated—"Having accomplished the work you gave them to do, your directors, who were appointed in November last, beg to place their resignation in your hands." In the next paragraph the directors said—"Your directors would also point out that as much care and constant attention are required in the direction of a company like yours, it cannot be expected that good and competent men can for the future be induced to undertake the work without some remuneration." As one of the retiring directors he should, before the meeting closed, have a proposition to make on that point, but he was sure everyone would agree with him that it could not be expected that men who had their own business to attend to would undertake the work of this company without remuneration. In conclusion, the Chairman moved the reception and adoption of the report and accounts.—Mr. SMYTH seconded the resolution.

The Rev. Mr. GREENWOOD said that as the accounts were only brought up to June 30 they did not give the shareholders much information regarding the present condition of the company, he should like some information regarding the number of shares, and also whether the calls in arrears had been disposed of. The CHAIRMAN said he hoped the calls had been disposed of. Mr. JACKSON, one of the auditors, said that the accounts were made up in accordance with the requirements of the Articles of Association, and moreover, it was impossible, looking at the fact that the property was in Australia, to bring the accounts down to a later period before the meeting. As regarded the accounts, no doubt the agreement with the vendors altered the amount of the shares, the calls in arrears, and the balance due to the vendors, but, beyond that, the accounts contained the best and latest intelligence in respect to the exact position of the company. The Rev. Mr. GREENWOOD asked whether the 4½ per cent. stock was still in hand?—The CHAIRMAN: Decidedly the greater part—much more than half.

The Rev. Mr. GREENWOOD asked what were the actual liabilities and what the actual assets?—Mr. JACKSON: The latest advice says there is no debt in Australia, and there is no debt here. There may be a small portion of rental accrued. Mr. COLLETT said there appeared to be 145,000 of capital, but he asked what was the actual amount now. Would it not be something about 90,000, or 100,000? Mr. J. R. JONES, solicitor, said there was not a reduction of capital, the shares which would be given up to the syndicate there for their disposition must be left to the shareholders, for these shares were surrendered to the company itself. It was not advisable to go fully into these matters at a public meeting at present, but as soon as the matter was fully completed any shareholder could go to the office and examine the details himself, and it would be the duty of the directors to send an account of the transaction to the shareholders, together with the disposition of those shares which were given up to be dealt with by the shareholders in general, and it would be for the shareholders to determine what should be done with the dividends.

Mr. JONES, in answer to General Hadden, said there was no privity of contract between the Australian vendors and the company as it now existed, and, therefore, the company could not apply to the Australian vendors to give up any shares. The company made an agreement with intermediate parties, but he believed that by a little tact the company would obtain what it required from the Australian shareholders. Mr. J. BROOKE BOOTH, in answer to General Hadden, said the 3000l. of Indian securities remained untouched, and a dividend had been drawn upon them to-day of 500 lba.

Mr. COLLETT, referring to the working of the mine, said it was bad policy to sink the shaft without working the gold. He had himself worked the mine, and spent 3000l. upon it, and was, therefore, in a position to speak on the subject. He hoped the mine would be worked in a miner-like manner. Whether or not a dividend was declared depends very much upon circumstances, but certainly 4 and 5 ozs. of gold was not met with every day. They had a captain who was attending to his business, and the thing was conducted very much better than formerly. He hoped the meeting would come to an understanding that the money in hand should be employed in doing proper work, and driving the level, which could be done at 10l. or 12l. per fathom. He contended that they ought to work the ore now in sight, and not spend all the money in driving levels, which might lead to no good result.

General HADDEN said that in fairness to all concerned it ought to be stated that the gold was only very lately found, and he thought much blame could not be attributed to the directors for working for gold in a direction where there was a likelihood of its being found. At the same time he thought the proposition of Mr. Collett was the proper one to adopt; to drive a level was a waste of money now, as they could now drive to a certainty.

After some further conversation as to the best mode of working the mine, the CHAIRMAN said the shareholders seemed to be entirely forgetful of the fact that the present directors were appointed as a committee of management; they were to see if anyone could be made responsible, and see what was the real worth of the mine. The present board found they had gone as far as they had power to go, and they now waited for the meeting to appoint directors to work the mine.

Mr. JACKSON, in answer to questions, said the directors had drawn no fees since last year. The law expenses had been somewhat heavier in this year than in the

previous year. Perhaps some of the law charges were rather for services which ought properly to have been rendered by the directors.

The CHAIRMAN pointed out that many questions arose which were really of a legal nature, and therefore no board of directors would have acted without legal advice. Beyond that there was no single case in which the solicitor had acted in any way as a director.

The Rev. Mr. GREENWOOD said he did not consider the legal charges in any way excessive.

Several gentlemen said they objected to the part of the report which stated that the directors tendered their resignation, and said that probably the shareholders might wish that some of those gentlemen might stay on the board for the purpose of carrying to a termination the agreement with the vendors.

The Rev. Mr. GREENWOOD moved that the report be received and adopted, with the exception of the paragraph relating to the directors' resignation.

Mr. JOSEPH seconded the amendment, which was put and carried.

The next subject was the remuneration of the directors, and eventually it was decided that the sum of 2500l. should be set aside for the directors for the ensuing year, to be distributed as the directors may think fit.

The next business was to appoint directors, and on this point Mr. JOSEPH said it was most desirable to carry on the mine energetically, and not allow the money which was left to be frittered away in unnecessary expenses.

Mr. COLLETT said he should very much like to see Mr. Joseph on the board, as that gentleman was well acquainted with the property, and was shortly contemplating another trip to Australia, which would probably be of great benefit to the company.

Eventually the following four gentlemen were elected a new board, with power to add to their number—Mr. Rodgett, Mr. Joseph, Mr. Witherby, and Mr. F. B. Jones, and a sum of 50 guineas was voted for travelling expenses.

The auditors—Messrs. Jackson and Hall—were re-elected.

Votes of thanks were then passed to the directors, the secretary, and the Chairman, and the meeting broke up.

LINARES LEAD MINING COMPANY.

The half-yearly meeting of shareholders was held at the offices, Queen-street-place, on Thursday.—Mr. WILLIAM COX in the chair.

Mr. H. SWAFFIELD (the secretary) read the notice convening the meeting. The report of the directors (which appeared in last week's *Journal*) was taken as read.

The CHAIRMAN said the reports had so fully entered into the matters of the company that he had but little to add. After a period of twenty-three years the accounts showed an unexpended capital of nearly 12,000l., which was represented by ore at the mine, by lead in transit, and lead here, &c. That was the more satisfactory because it may be remembered that the unexpended capital in hand a few years since enabled them to put the company into a condition to pay good dividends by the purchase of the Quintenos Mine. Although that property had not yet turned out so productive as he had anticipated it had enabled them to pay dividends, for it had given 150 tons per month, which, added to the return yielded by the old mine, put them in a paying state; there was no reason to suppose there would be any falling off, and he hoped the returns would soon be increased. From the reports received it seemed it would not be long before further discoveries were made which would enable them to increase the raisings of that mine. For some years past the reports had referred to a falling off in the reserves, but the report now before the meeting stated that the reserves, notwithstanding they had raised 200 tons more from the old mine, had been increased by 350 tons. That meant that they might look for the present returns being sustained. Those 350 tons increase in the reserves was equal to something like 2000l. or 3000l., and they had expended in obtaining it only about 1000l. He then moved that the report and accounts be received and adopted.

Mr. CROSBY seconded the proposition.

Mr. JOHN TAYLOR said the finance of these three companies was in a thoroughly sound condition. The shareholders possessed a large property that was not charged with any debentures or bonds—the people who took their produce paid cash with 2½ per cent. discount. The dividends varied according to the price of lead and other circumstances. They had a reserve invested in Consols. It was perfectly true they had not met with the success in the Quintenos Mine they had anticipated, but it was the same vein as had proved so productive in one of the Fortuna mines. They were opening ground rapidly, and the mine was provided with shafts and good machinery, and the lode was powerful and well defined. It was quite on the cards—although he did not venture to predict in these cases—that something good would be met with in sinking deeper. Meanwhile, they were raising 150 tons per month. With the present high price of lead it was a question whether they should not resume the sinking of the shaft at the Old Linares Mine. It was now down 120 fms., and was provided with an excellent steam-engine. Although the mine was comparatively poor it was not without lead. It was quite possible they might meet with some better stratification, and find ore again. They hoped to be able to maintain their good position for many years.

The motion adopting the report and accounts was put and carried.

A vote of thanks to the Chairman and directors closed the proceedings.

ALAMILLOS MINING COMPANY.

The half-yearly general meeting was held at the company's offices, Queen-street-place, on Thursday.—Mr. W. COX in the chair.

Mr. H. SWAFFIELD (the secretary) read the notice convening the meeting, which the Chairman thereupon declared duly constituted. The report and accounts, abstracts of which have already been published in the *Journal*, were taken as read.

The CHAIRMAN, in moving the reception and adoption of the reports, &c., expressed regret that the amount of profit realised on the past half-year's operations was not so large as during the six months ending Dec. 31, but this was in consequence chiefly of the ore raised having been less, while the prices obtained for the lead sold had not been so favourable as in the previous six months. The directors were, however, enabled to declare a dividend of 2s., which was the same as before, and he saw no reason why with the present price of lead there should be any falling off. Turning to their financial condition, he could say that the finances of the company were as good as that of their neighbours. They had a large unexpended capital, or at least a considerable sum in ore raised and in stock, so that they were enabled to sell their produce when it ought to be sold, and were not compelled to sell when it was undesirable to do so. They did not carry forward a very large balance; they considered that the profits of the day ought to be divided among the shareholders of the day. He concluded by formally moving that the reports be received and adopted.—Mr. CROSBY seconded the motion.

Mr. PARTINGTON enquired whether there was any reason for keeping so large a reserve fund as they had?

Mr. TENDRON thought nothing would be more imprudent than to reduce the reserve fund, for in carrying on the business of a mine it was essential that they should be at all times prepared for contingencies.

The CHAIRMAN certainly thought that it would be very bad policy to meddle with the reserve fund except to increase it. It was to meet any unexpected contingency which might arise in the working of the mine and to equalise dividends. Mr. TAYLOR, in reply to Mr. TENDRON, said he should be happy to give them all the information with regard to the mine. The levels generally are not so rich as they could wish. The vein had given very large returns in the upper levels, but at a certain depth a fault impoverishes the vein. The vein underlies very slightly, and the slide considerably more. They had got below the slide in several places, and found that the lode maintained its character, but was not rich in ore. They were now pushing on the works of discovery as much as possible, and were getting 50 tons a week, which was a large quantity; at present this left them a fair profit. For the last 12 or 13 months, however, the levels had no doubt been poor. It was a mine of great extent, but the lodes are not so much enriched as some others in the locality. They had good points under the slide, and hoped when beyond the influence of the slide they would have an improvement.

The resolution was then unanimously adopted, and the usual complimentary vote to the Chairman and directors having been given and acknowledged, the proceedings terminated.

FORTUNA MINING COMPANY.

The half-yearly general meeting of shareholders was held at the company's office, Queen-street-place, on Thursday.

Mr. R. HENTY in the chair.

Mr. H. SWAFFIELD (the secretary) read the notice convening the meeting, which the Chairman thereupon declared duly constituted, and the report and accounts were taken as read.

The CHAIRMAN remarked that the report really contained as much as could be said upon the subject, and he hoped the dividend had satisfied those who had received it. It was not quite equal to that of the previous year, but in Spain, as here, labour and materials had been higher, and there had, consequently, been rather an excess of expenditure in different parts of the mine. They had, however, done much in opening out the mine, so that it was merely a loss of dividend for the moment. They could say nothing with regard to the mine but what is satisfactory—indeed, he might take it as an evidence of the confidence felt in the directors and satisfaction with regard to the mine that comparatively few shareholders were present. If it had been his bad fortune to have come there with all sorts of excuses there would, no doubt, have been a more crowded room. Mr. Taylor had expressed great hopes as to the Graciosa portion of the mine, so that there was no fear of their being disappointed there, and they had attained a satisfactory position as to finance.

Mr. SWAFFIELD, in reply to Mr. PARTINGTON, stated that 4500l. was actually

invested as reserve fund, and that an additional 500l. would be added during the current half-year.

Mr. PARTINGTON understood that the utility of a reserve fund was that their dividends might be equalised, and, that being so, he could not comprehend why they were given in less dividend instead of the difference being drawn from the reserve fund.

Mr. COX explained that by the terms of their Articles of Association they were compelled to write off a certain amount to the reserve fund until it reached 10,000l. Mr. TENDRON would say again that he considered the reserve fund was the key-stone of good management. In the case of a mine in Spain it was quite necessary to put by the 500l. to provide for contingencies that might arise.

A SHAREHOLDER thought that, apart from all other considerations, it was essential to have a reserve fund in every case where the whole of the company's capital was called up. He referred to the St. John del Rey Company as an instance of the absolute necessity for a reserve fund, and of its beneficial application.

Mr. COX expressed the hope that the day would come when the 10,000l. limit would be reached, and they might then consider whether they afterwards should close up or further extend the fund.

Mr. TAYLOR thought that Mr. Partington would learn that the price of shares was favourably affected when a company had a good reserve fund. He thought that when they reached the 10,000l. they might find it better to have another 5000l., but the present was not the time for discussing that question. As to the mines, Los Salidos had been extraordinarily rich, and although at the present time it was not so rich as it had been, it was still, and he hoped would continue, a good mine. All the ground in La Graciosa was at present also looking well.

But the principal improvement during the past six months had been in Canada Inocosa. The south lode had been very good, and had contributed largely to the returns. This mine had improved, particularly in the eastern part. There was a large tract of unproved ground between the east and west districts of the mine, which they were watching with much interest. They could deepen the shafts, and the winding and pumping would be carried on through them, so that the stuff would be brought up close to their dressing floors at surface. The advices received to-day stated that the 90 fm. level was looking well, which was highly satisfactory.

But they were actually returning about 400 tons of ore per month, and they would readily understand that this could only be kept up by very extensive workings. The returns were likely to continue.

Thanks were then voted to the Chairman and directors, and duly acknowledged.

Mr. TAYLOR, in acknowledging a special vote of thanks to himself, said that he must admit that the position of these companies was a matter of no small pride to him. He did not grasp at large profits—a short life and a merry one—but preferred a regular and continuous dividend. There was one thing connected with mining which the public could not understand at all—that you might have valuable ore and lose all the profit upon it by working it too quickly. He had agreed with the other members of the board in putting the finances of the company in a good position, and they looked forward to a long continuance of profit.

The meeting then separated.

BAGWORTH COLLIERY COMPANY.

An extraordinary general meeting of shareholders was held at the London Tavern, on Wednesday, in accordance with and for the purpose set forth in a requisition left at the office of the company on Sept. 21.

Mr. JAMES WRIGHT, C.E., in the chair.

The requisition was read, as follows:—

"We, the undersigned, members of the above company hereby require you to convene an extraordinary general meeting of the shareholders of the company, for the following objects:—To accept the resignation of James Wright, Esq., George Haynes Miller, Esq., and William Phipps, Esq. (commonly called Lord William Phipps), of the office of directors of the company, or if such resignation should not be tendered then to pass a resolution to remove them from their office, and to appoint other persons in their stead.—Dated Sept. 21, 1875."

The CHAIRMAN said he never addressed a public meeting with greater feelings of humiliation. It was not a pleasant thing to be obliged to defend one's own character, and it was still more unpleasant when called before a public meeting to defend it from covert insinuation. This meeting had been called to receive the resignation of himself and his colleagues. He considered the man who penned the requisition must be a very small-minded man if he thought the directors would act upon the suggestion, and resign. If those who had framed it thought to terrify the directors into resigning by insinuating vague charges they had sadly misunderstood the persons they had to deal with, and it was a most malignant act. The directors were not going to resign, but demanded that the charges basely insinuated should be distinctly and openly set out. Personally speaking, considering his other avocations, and the condition of his health, it would be a source of gratification to him to have resigned long since; but, under the circumstances, if he now did so he should feel he had permitted a slur upon his name which he could not allow. When he joined this company he did so upon the representations made in the prospectus, and also upon the faith of those who introduced it to him. He came in as any other shareholder, subscribing and paying for his shares, and he could conscientiously say he had faithfully and honestly performed his duties as a director, looking alone to the interests of the company. He could say the same with regard to his colleagues, as no gentleman could have given greater attention to the interests of the company. Lord William Phipps, who had been upon the direction twelve months, had nothing whatever to do either with the promoter or vendor, and no one could have devoted more time and attention than his lordship. With regard to Mr. Gladow, he (the Chairman) never heard of him until he attended the first board meeting; for when the prospectus was issued he was some 3000 or 4000 miles distant from this country, and he did not return to England until after the shares had been allotted. He had been several times to the colliery, and had had considerable experience in colliery matters; he soon found that Mr. Gladow was *au fait* with every detail, and he at once came to the conclusion that it would be a matter of difficulty to satisfactorily progress without the assistance of Mr. Gladow. Mr. Gladow was a man of considerable means, and totally independent of this colliery, but he (the Chairman) considered it very necessary that Mr. Gladow should remain, although he had several times expressed a desire to resign his position. With regard to Mr. Miller, the vendor of the property (with whom prior to joining the company he had not spoken ten words), he soon found that there was very little detail of colliery management with which that gentleman was not familiar, and he had no hesitation in saying that Mr. Miller was a very valuable director. The requisition pursuant to which this meeting had been called implied that the directors had been guilty of some gross negligence of the company's interests, if the gentlemen who had called this meeting had anything to say against the directors unworthy of their position, let them avow it in a manly, straightforward manner. If these gentlemen had good grounds for believing the directors had been capable of misfeasance, or some gross neglect, they were perfectly justified in taking the present steps; but if, on the other hand, there were no such grounds he thought, as a matter of common justice, the board were entitled to call upon the shareholders to protect them against any sort of act implying dishonour. (Hear, hear.) He did not ask the meeting to keep him upon the board, but he did ask them to act justly towards him, at least unless it had been proved he had done anything unfitting him to occupy the position. Now, as to the cause of this movement, he had thought that under the peculiar circumstances of the coal trade, the dividend paid at the last meeting would have been regarded as satisfactory, and he had been surprised to find fault found because they had paid 7 per cent. When a committee of investigation was proposed the directors objected to accept it, because there was nothing definite alleged, but they would accept a committee to confer with them, which was appointed accordingly. The committee were wanted to visit the colliery and meet the directors, in order to be satisfied upon all matters, but to his surprise he found they declined to do so; the next day a note was sent introducing an accountant. Some of his colleagues said Mr. Jay was not friendly with Mr. Miller, and had a personal object in bringing this forward. He said they had nothing to conceal—let the accountant or any other person investigate anything and everything. Mr. Gladow afterwards told him that after having made an appointment the accountant did not go to the colliery. He was not aware that any paper or document had been withheld from the committee, and he should only have been too glad to have met them. He heard nothing more till the statement was made that the directors had interfered with the investigation, and called upon the shareholders to dismiss them, and elect the committee as a board. He had nothing more to say, except to call upon the meeting to request the reason why they had signed a requisition to convene the present meeting for the removal of the directors.

Mr. EDWIN JAMES entered a protest against the meeting, upon the ground that the shareholders had no power to remove directors except by a resolution passed at a general meeting. The proposal for the removal of the directors was in direct violation of the Articles of Association.

Mr. PALMER was a considerable shareholder, and he had not the slightest complaint to make against the Chairman. The main question for this meeting to decide was not the removal of the directors and putting in other men, but whether Mr. Gladow sold the colliery to Mr. Miller for a given sum—say 25,000l.—and Mr. Miller sold it to the company (at the time he was director) for 40,000l.—it is true Mr. Miller must disgorge that money.

Mr. MILLER was quite prepared to have the whole matter investigated.

Mr. JAY (a member of the committee) said that when he took 250 shares it was

part of the bargain he should take the seat at the board occupied by the party whose shares he purchased. When Lord William Phipps had been appointed, he was told it was in accordance with the wish of a large shareholder, Mr. Armstrong. As nearly the largest shareholder he (Mr. Jay) did want to know how the capital was being expended, and he left at the office only one letter asking for a seat at the board, and yet he was told he had been pushing himself on the directors. He was appointed upon the committee, and before they could turn round they were asked to confer with the directors. He said, No, the first thing necessary was to examine into the constitution of the company, and the mode in which it had been formed. And what did they find? That the company had 15,000l. in the hands of the bankers, which was not enough to pay Mr. Gledow, who was to receive 25,000l.; they were obliged to allot to him 500 shares, and to borrow money until there was sufficient to pay 25,000l. He was perfectly satisfied with Mr. Gledow receiving 25,000l., but somebody else got 15,000l., and he felt the shareholders were justified to make an investigation to see whether they could not get back any of that plunder.

The CHAIRMAN said that none but the directors' minute book had been refused. Mr. JAY said that was the only book that could possibly give the committee the information desired: there were 1500 free shares paid to Mr. George Haines Miller on the day he took the cheque for 25,000l., which was handed over to Mr. Gledow. The solicitor's bill disclosed the fact that at that time Mr. Miller was a director.

Mr. MILLER said that Mr. Jay had made statements he was quite unable to prove, and he (Mr. Miller) was perfectly prepared to allow all the transaction to be thoroughly investigated, but should object to Mr. Jay serving upon the committee. Mr. PAGAN repudiated the idea that he wished to push himself upon the directors. The CHAIRMAN said they seemed to be at one: all the shareholders seemed to want a committee of investigation. Mr. Miller, on the other hand, said appoint your committee, but object to Mr. Jay, because Mr. Miller said Mr. Jay had some personal feeling and animosity against him. As far as he (the Chairman) was concerned, every book, paper, and document, and minute-books as well, should be at the disposal of the committee.

The SOLICITOR of Mr. Miller undertook to produce the contract made between his client and Mr. Gledow.

Mr. PALMER said that nothing could be more handsome. (Hear, hear.) Mr. BUCKINGHAM was delighted to find Mr. Miller had met the shareholders in the way he had done, but he was bound to say on behalf of Mr. Jay that he had never heard from him one word of personal feeling against Mr. Miller, and he should be very sorry if Mr. Jay was not upon the committee.

After some further discussion it was unanimously resolved that the directors undertake to produce all papers, books, and documents belonging to the company. Mr. Miller undertaking to produce all papers relating to the purchase of the colliery from Mr. Gledow, and its sale to the company, that a committee of investigation be appointed, consisting of Messrs. Jay, Palmer, Buckingham, Fagan, and Drake, with power to employ a solicitor on behalf of the company.

Mr. GLEDOW wished to state, before the meeting separated, that he had been disappointed at the shareholders complaining of the smallness of the dividend. He assured them that the transfer of the property to the company was perfectly legal. The Mines Regulation Act was a death-blow to collieries, as it had caused an increase in working time of something like 25 per cent., and this was acting against them in the worst of times. Until that Act had been altered or repealed coal property would continue to be seriously affected. He could only point out three collieries that last year had paid, or were paying, dividends. Between Sheffield and Bristol there were more than 100 collieries, drawing 1500 tons per day, and if they worked only half time the quantity produced would greatly exceed the demand. He wished shareholders to understand it was not the management of the colliery but the seriously bad times that had affected their profits, and he feared that for a time they would not see any improvement.

A cordial vote of thanks was passed to the Chairman, against whom the shareholders unanimously stated there was not the slightest reflection or disrespect.

The proceedings then terminated.

MELINDUR VALLEY LEAD MINING COMPANY.

An extraordinary general meeting of shareholders was held at the London Tavern, on Tuesday, to consider, and, if deemed advisable, to pass a resolution authorising the directors to issue the unallotted shares at a discount of 30s. per share, and to allow such discount or commission on all shares allotted subsequently to March 16, 1875, and that such unallotted shares be offered, in the first instance, to the present shareholders *pro rata*.—Capt. CLARKE in the chair.

Mr. E. C. RAVENSCROFT (the secretary) read the notice convening the meeting.

The CHAIRMAN said he would state as briefly as possible the reason why the directors thought it necessary to call this extraordinary meeting. Some short time since the directors deemed it advisable to take the opinion of some of the largest shareholders with regard to the financial position of the company. The position was thoroughly considered, and the future prospects of the mine were also discussed. Their engineer, Mr. Kitto, was present, and gave a very encouraging account of the future prosperity of the mine, provided there was sufficient capital to thoroughly develop it. One other gentleman, who he was glad to see present now, also expressed his opinion of the property, giving a highly satisfactory account of its then condition, and also its successful future if sufficient capital were expended upon it. It was then suggested that the unallotted shares should be issued to the present shareholders at 30s. per share discount. But the directors considered it advisable before such a suggestion was carried out that the opinion should be obtained of the shareholders generally as to the advisability or otherwise of authorising that issue. On March 16 a circular was issued asking the shareholders to subscribe capital, or rather take up some of the unallotted shares; to this circular was appended a report from Mr. Thomas Sopwith, jun., in which he stated that he had no doubt if sufficient capital were provided there for future operations it would be successful. There was one gentleman present who had visited the mine several times, and he (the Chairman) would be glad if he would favour the meeting with his opinion thereon before the resolution embodied in the notice convening the meeting was submitted for approval or otherwise.

Mr. BEAUMONT was one of those shareholders who were present at the meeting referred to by the Chairman. The company possessed a very extensive property, nearly a square mile, and contained four lodes, which have yielded a large amount of money within a short distance of the company's boundary. Their development works had been rather larger and heavier than anticipated at the outset, and he was bound to state in justice to the manager that the whole had been performed in a very creditable manner. He had frequently visited the property, and on each occasion he had been more and more convinced of its permanent value. He was sorry that unallotted shares were proposed to be offered on less than the original terms, but inasmuch as the price on the market had been devalued it was, of course, unreasonable to suppose that the unallotted shares would be subscribed for at their price; but if taken up *pro rata* at the discount price each shareholder would benefit thereby, and ample capital would be provided to bring the mine into a successful condition. The indications were exceedingly favourable, the improvements in the engine-shaft had been uniform, and it was now proposed to prove it to a depth of 38 or 40 fms. The north cross-cut was more than 1 mile into the hill, and must be very near the junction with the strong lode which had been opened upon in the property lying north. There were two lodes further south, one of which had been opened up very nearly $\frac{1}{2}$ mile distant, and was turning out and proving to be very rich. He referred to the Gogginan lode, which the West Gogginan rendered that property one of the most promising in the neighbourhood. There were, therefore, four lodes, and all that was wanted was capital to ensure successful results.

The CHAIRMAN said they had received a report from Mr. Kitto, dated Oct. 9, as follows:—

Oct. 9.—We are making very good progress with the sinking of the engine-shaft below the 26, and I am pleased to say the lode (which is about 4 ft. wide) continues to improve in character as we go down, and is now yielding a little lead ore, with every prospect of further improvement, and judging from the great change that has already taken place, I am decidedly of opinion that, in a few fathoms further sinking we shall discover a payable and profitable mine. The underlay of the lode is still becoming less, and the present prospects will fully justify the opinion above expressed. The lode in the 26 driving east is very large and kindly, but as there seems to be a great portion of it standing on the north side, I have ordered a cross-cut to be put through in order to prove its full size and value. We have from 10 to 15 fms. further to drive to reach the run of ore ground discovered in the 14, and at this point I expect a very productive lode. There is no change of notice in the 14 driving east, but as we are now getting very near the run of one of the bunches of ore passed through in the driving of the adit level I am almost daily expecting an improvement. The slope in the back this level is still yielding well, but the slopes above the adit level have got near the surface, and are not very rich. In the long cross-cut driving towards the north lode we have lately intersected a small branch, which I believe to be a flyer from the lode, and that we are in close proximity to the same. The ground through which we are driving is in every way favourable to the production of ore, and I still entertain very strong hopes that we shall soon intersect a rich and profitable lode. In fact, I consider our present prospects to be far better than they have ever been before since we first commenced operations, and considering the comparatively small amount of capital actually spent in the development of the mine, the result obtained has been, in my opinion, very satisfactory. We sold on the 3rd ult., to Mr. George Burr, 25 tons of lead ore, at 13s. 12s. 6d. per ton, but this would have realised a much better price if we had machinery to crush and dress with. The pumping and winding machinery is all in good condition, and is working well.

The CHAIRMAN added that this morning the board had a letter from Mr. Kitto stating his willingness to take his proportion of the unallotted shares provided the whole should be taken up. It could scarcely be imagined that a man like Mr. Kitto would risk his money if he were not thoroughly satisfied of the value of the mine, and that it must eventually become a paying property, and if he (the Chairman) had the least doubt about it he would be the last man to ask anyone to put money in it.

Mr. ROSS said it was particularly satisfactory to hear that one of the company's officers, and that the manager of the mine, was willing to take up his proportion of the unallotted shares, but he begged permission to say, with much respect to the gentlemen sitting on the other side of the table, that the reasons as yet urged for the issue of the unallotted capital were as lamentably weak as any he had ever heard expressed by any board of directors. They were told more capital was wanted, but certainly the meeting required more facts than had been yet submitted before proceeding to take the step now proposed, the result of which would be the sacrifice of a large amount of capital for a small amount of gain. Before the resolution was put the shareholders would like to hear what the directors were prepared to do in taking their proportion of the unallotted shares.

Mr. BENNETT (a director) moved the resolution embodied in the notice convening the meeting. The object was apparent—an immediate necessity for money to carry on the mine. By starving the mine they could do without it, because they

could return as much lead as would meet the costs, but that could not last long, and would be sacrificing the future for the present. For further information desired by the shareholder the board must refer him to Mr. Kitto, who says that 3000l. was required. They had tried to issue the unallotted shares at par, but without success; and, as the money must be raised, it was clearly the interest of those who had already embarked a certain amount of money in the venture to come forward and assist in providing the further means necessary to ensure success. If each shareholder took his *pro rata* interest at the discount proposed the advantage would be, as it were, confined within the company, and each would maintain his relative position. He recollected an instance in which shares were issued at 10s., the effect of which had been not only to improve the price of those shares, but also those originally issued, while the mine had been brought into an improving condition.

The CHAIRMAN mentioned that Mr. Kitto had stated he should require 7500l. for dressing machinery, in addition to the 3000l. for the development of the mine. The SECRETARY, in reply to a question, stated that the unallotted shares would realise 7000l.

After some further discussion, it was resolved to limit the issue to 3000, and that none be issued unless that number be subscribed for. It was also resolved that the remaining shares be not issued without the sanction of a general meeting.

The CHAIRMAN said the directors would, no doubt, take all the shares they were able to do—each would do his fair share.

Mr. BEDFORD said he should take his proportion, and should advise his friends to do the same, as he had the fullest confidence in the mine.

A vote of thanks to the Chairman and directors closed the proceedings.

ROOKHOPE VALLEY MINING COMPANY.

The adjourned extraordinary meeting of shareholders was held at the office, Austinfrs., on Thursday.—Mr. R. WILSON in the chair.

The notice convening the meeting was read, and the following report from Mr. Blenkiron:—

Oct. 13.—I have this week visited the above mines, and beg to hand you report on the same. We have still only 14 men underground, as follows:—Four men on the back of the 13m. level, at 50s. per fathom, yielding about 25 cwt. of ore per fathom; six men on the back of the 25m. level, at 50s. per fathom, worth 25 cwt. per fathom; four men making air communication between the 15 and 25 for stopping, which will be completed in a day or two, after which the men will be placed to raise ore in similar ground to that being stopped above, the ore workings looking rather more favourable than when I last reported, and having opened out a quantity of stopping ground in the backs of the 15 and 25m. levels will be worked at a rather less cost when we stop driving forward east. The 42 is open to within about 10 fms. of the end of the forebreast, and in good repair; at that point a little work has run or broken down from the roof, damaged or stopped the water, but we can see forward, the level not being closed a few fathoms further; the level can soon be opened to the end, and the stuff fallen or broken down will pay for drawing and dressing. Nothing has been done on this level since the water was cleared out of the mine at the accident, all machinery, pitwork, pumps, &c., and dressing machinery are in good working order. We have about 15 tons of ore in the bin ready for market, and 4 or 5 tons more on the floors in a forward state. We can have 20 tons completed by the end of this week, and if you do not sell in the meantime we hope to make it up to 30 tons by next board meeting. We have arranged to place a few more hands to raise ore, so as to keep the dressing-floors more fully employed. I am sorry the 42m. level was stopped; it is from that part of the mine that permanent returns are to be expected; it is a great mistake its standing, it might have been into good ore-bearing ground ere this. I trust you will come to such an arrangement this week, so as to instruct us to resume driving the 42, and set to work some more ore getters, as the working expenses, agents, coal, engineers, &c.—are the same they would be were there the number of hands employed. I am pleased to see you have offered a reward to try and find out the party that caused the accident to the machinery.—JAS. BLENKIRON.

The CHAIRMAN explained that in August, the date from which the present meeting had been adjourned, it was considered quite possible that something might be done in respect of further capital, but such had not been the case, and they had just received a telegram that the holder of the bill of sale had taken possession. Unless, therefore, Mr. Hamilton could be persuaded to wait for a time to see if the necessary money could be raised the property would be sold. It would be a most unfortunate event, as the mine had been paying a little more than its costs. Some evil-disposed person had thrown some 2 or 3 cwt. of cast-iron down the pumps, which had incurred a loss of at least 250l.; but for that circumstance the last two months' operations would have shown a profit.

Mr. YONK (a director) said it would be a thousand pities if this property were allowed to fall into the hands of others. Some scheme should be proposed by which the present shareholders could to some extent participate in the benefits to result from their expenditure.

Mr. MURKIN suggested that a similar plan to that which he successfully carried out in other cases should be adopted—that a new company should be formed in 15,000 shares, of 30s. each, 5000 to be given free to the present shareholders, whether or not they subscribed towards the new company, and 5000 to be given as a bonus (share for share) to those who subscribed for the remaining 5000 at 30s. per share, payable in instalments. Those who came in upon those terms would continue to hold the same number of shares, and those of the present shareholders who did not subscribe would give up two-thirds of their interest in their property to those who found the money. This would give 6000l., and the capital upon which to pay dividends would be only 50,000.

After some further discussion, upon the proposition of Mr. HALES, seconded by Mr. FYKE, it was unanimously resolved that the directors be requested to call a special general meeting for the purpose of authorising them to dispose of the mine and other property of the company to a new company upon terms to be then agreed upon.

It was also resolved that the meeting hopes the holders of the bill of sale for 1200l. will not take any further steps, to give time to the company to pay the amount, indemnifying him for any costs incurred, or to be incurred.

A vote of thanks to the Chairman closed the proceedings.

GREAT LAXEY MINING COMPANY.

The annual general meeting of shareholders was held at the Imperial Hotel, Douglas, Isle of Man, on Wednesday.—Mr. G. W. DUM-BELL, H.K., Chairman of the directors, presiding. There were also present Messrs. C. Cleator, James Spittall, Peter Watson, and F. Broadbent (directors), Dr. Rings, Messrs. F. Falkner, R. G. Collier, A. J. Spittall, G. Barber, John Parkes, W. Stephenson, E. Corbould, Capt. Cornish, Capt. Reddcliffe, T. Collier, J. Haining, J. Kaye, P. L. Garrett, W. Tupper, J. Ramsbotham, J. A. Brown, &c.

The meeting was called for noon, and at 20 minutes past 12 the CHAIRMAN rose and said: I think it is now time to begin. I do not wish, especially as the meeting is so small, to appear to anticipate anybody before they can open. The secretary (Mr. Rogers) will now read the notice convening the meeting. The notice stated that the accounts and the manager's report would be laid before the meeting, and the appointment of directors and auditors for the ensuing year would take place, the retiring directors and auditors being eligible for re-election. The notice also stated that at the London meeting in April last a resolution was passed—"That the remuneration of the directors be fixed upon at the general meeting in October next, such remuneration to commence from the election of the directors in October last." This meeting would, therefore, be called upon to decide what remuneration was to be paid to the directors. The meeting would also be called upon to confirm the resolution passed at the April meeting, giving the directors power to dispose of a portion of the company's set called Glenroy, upon such terms as they may think best.

The CHAIRMAN: I presume we may consider the report of the managers and the accounts, as already furnished to each shareholder, as read. I now propose that Mr. Rogers proceed to read the directors' report:—

It is a matter of great satisfaction to the directors to be able to meet the shareholders of Great Laxeay with a half-yearly account that shows a steady profitable working of the mine, which has not only enabled the directors to pay increased dividends to the shareholders, but also to set aside a sum of 4000l. towards the reserve fund. The directors yesterday declared a quarterly dividend of 2s. per share, which is at the rate of 40 per cent. upon the capital of the company. It was also resolved to pay a bonus of 2s. per share, these payments being equal to 50 per cent. per annum on the share capital of the company. The directors at the same time directed a further sum of 1000l. to be added to the reserve fund, which is thereby increased to 5000l. The men in the employ of the company being anxious to erect a suitable building for their use as a reading room and workman's institute, the directors have contributed a sum of 200l. to assist them in accomplishing their object. The directors refer with much regret to the loss of life in the mine as named in the report of the managers, but for the want of none of the officers of the company were in any respect to blame. The operations at the mine, both underground and on the surface, progress to the great satisfaction of the directors, and reflect great credit upon the managers. The property of the company is being continually improved, and a new reservoir, which is just completed, is likely to be of considerable service; and the men of all classes, under the guidance of the managers, pursue a steady course of action, to the very great advantage of the company, and to the comfort of those employed. The various matters to be brought before the meeting are referred to in the notice sent to each shareholder. In conclusion, the directors congratulate their fellow shareholders upon the present prosperity and future prospects of the Great Laxeay Mining Company.—G. W. DUM-BELL, J. SPITTALL, C. CLEATOR, F. BROADBENT, P. WATSON.

The accounts and the managers' report having been previously circulated amongst the shareholders were taken as read.

The CHAIRMAN: Now, gentlemen, I have no intention of occupying your time to any considerable extent, but simply to allude to two or three points which were referred to in the report of the managers. The first thing I have to do is to express my own personal satisfaction, as well as that of the directors at large, with the management of the mine, and with the way in which everything has turned out. I do not think that any reasonable man can possibly be found who is at all interested in the undertaking who would not say that, notwithstanding all that has been said heretofore (and to which I do not now wish to refer), the managers have proved themselves to be most able men in the position in which they have been placed, and the result of their labours must be as thoroughly satisfactory to themselves as it must be to those who are most interested in the result. (Applause.) Gentlemen, I must say that I am exceedingly glad that the object I have for a great number of years had particularly at heart is to a great extent now being accomplished. I have long anxiously desired that there should be a settled rate of dividend payable to the shareholders quarterly, that it should not fluctuate by there being a small dividend at one time, and at another time a large dividend, got together by screwing every shilling that could be procured to pay it, thus making the shares fluctuate in the market, to the manifest injury of those who had been induced to give a fictitious value for their shares. I have no wish to see the shares brought down unnaturally and unfairly, nor do I wish to

see them go up to a higher figure than they are really worth. I do not speak to you as one who is likely to be very long amongst you, I have reached a time of life at which I cannot reasonably hope for such a thing. While, however, I am amongst you I want to see that the shareholders should support the directors in a stated course of action, which must be in benefit and advantage to the shareholders at large. I told you that my anxious desire is that there should be a settled rate of dividend, and I hope that we shall now be able to declare a regular dividend of 2s. per share. (Applause.) That must be considered a very handsome dividend, inasmuch as it amounts to 40 per cent. of the capital of the company. You are not to judge of the "goodness" of a dividend by the amount given for the share, that is simply a matter of speculation, the capital is what we should look at; it is upon the capital that the dividend is settled and to be judged, whether it is small or large. Now, 40 per cent. I consider a large and handsome dividend, and it is paid by any concern, no matter what it is. If, however, the financial state of the company is such that it will justify a larger dividend than even 2s. per share, then let it be given, not as a dividend, but in the way of a bonus. By that means you will not be tied to giving a larger dividend than 2s. per share, and you can give whatever else you may wish in the way of a surplus. By that means, too, you are not crippled by at one time giving a very high dividend, and then having to reduce that dividend to a very low amount. In order to enable the shareholders to have settled and regular dividends you must take all things into consideration, and look at the question as it at present stands. (Hear, hear.) You must not always expect that you will have so large a produce from the mine as of one from the mine as we have had during the past half-year; for during that period we have not only sold our raisings, but a large quantity of blende which we have in stock, and at the present time, as must be seen from the balance-sheet, we have only 5 tons of blende in stock instead of 100 tons as was formerly the case. This, of course, exclusive of the topplings, which will yield whatever they may yield. However, at the time of that account, all the blende we had in stock was the small quantity of 5 tons. Another thing has been done which I hope the shareholders at large will be satisfied with. We have had the accounts prepared in a different way to that in which they were formerly submitted to the shareholders. It has been the custom ever since this company was formed to put into the accounts a large estimate of the stock of ore in hand, this item representing the ore which had been raised, but not dressed. That custom, in my opinion, gave a fictitious or too favourable appearance to the balances as prepared at the time. We have now, however, for the first time, withdrawn from the account everything of the kind. The account, as you will perceive on reference to the account you the balance of account as passed at the last meeting, less the estimated stock of ore on hand, which had amounted to 21,700l., leaving the total balance then actually available for the purposes of the company, 478l. I did not like the old system, but I have never been able to have my own way with regard to abolishing it. I always, I confess, try to have my own way, but if I cannot get it I do without it. (Laughter.) In this instance, however, I have been supported by the directors in every shape and form; and the account has, consequently, been made out in a different shape to that in which it has hitherto appeared. At my request it was done by the secretary, and it was approved of by the directors, and is now brought into the account except what has actually been sold and realised; and although the balance in hand is represented by bills current, yet they could be discounted, the balance available for the use of the company at the time the account was made up being 11,643l. 16s. 8d. It is, no doubt, quite fair to give the shareholders an idea of the stock in hand, but that should be done in a separate account. That we do in this account, the value of the ores in hand being estimated at 11,410l. 7s. But it is not out of this that the dividend yesterday was declared. Now, I would strongly advise that for the future we always resort to the same system, as long as the funds will permit, to add to the reserve fund, until it amounts to at least 20,000l. I do not mean to say that we should keep the money in the bank, but I would recommend that it be invested in consols, so that it might be placed beyond the possibility of doubt. By having this reserve fund, should any great breakage take place, or any great expenditure be necessary, then we would not have to take it out of the profits and stop the dividends, but we could take it out of the reserve fund; in fact we would be enabled to meet any great demand on the company without interfering in any shape or form with the dividends of the company. Another advantage of the reserve fund is, that should any fatality arise that would interfere with the quarterly dividends of 2s. per share, then take any balance that we required to make up the dividends to that amount from the reserve fund, as referred to in the Deed of Association, and we would be perfectly justified in doing so. Such a thing may arise as our being unable, owing to dry weather, to dress our ores; or the frost may fasten upon our machinery, as it has done before, so that we could not work, and then we would not be able temporarily to avail ourselves of the produce of the mine. We could then resort to our reserve fund, and when things went right again we could return to the reserve fund, and when money we used from it, we could return it to the reserve fund. Another advantage of the reserve fund is, that should any fatality arise in the minds of some of the shareholders with regard to the interest on the reserve fund, they being of opinion that a sufficient sum does not appear as interest upon the reserved fund that has been acquired already. I can, however, give you a good account of that. Our secretary (Mr. Rogers) is always considering how money can be saved and expenses curtailed—(hear, hear)—and but for his able and unceasing exertions in the service of the company I would never have been able to do what as Chairman of the company I have done, for I could not possibly have gone on under the old state of things. Mr. Rogers is always ready to undertake any labour for the good of the company. True, the directors are always ready to meet the events, as long as the funds will permit, to add to the reserve fund, until it amounts to at least 20,000l. 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also did the crushing and stamping, would be required for the two latter purposes, and be fully equipped when the new shaft was available, drawing the large accumulations of ore ground laid open westward. It would be advisable to erect a circular saw, and a small engine to work the same, also a lathe, &c.; this would economise labour greatly, and be a considerable saving to the company in future. Every satisfaction was expressed with the statement made. It was suggested that a lithographed copy of the plan, showing the workings, would be acceptable to the shareholders. The same was agreed to be done forthwith.

Mr. Edward Geach was elected to the vacancy on the board of directors.

SOUTH FRANCES MINING COMPANY.

A four-monthly meeting of adventurers was held on Monday, at the account-house. Mr. J. F. PENROSE (the purser) read the statement of accounts, which showed a loss on the four months' working of 11477 16s. 9d. At the last meeting the debit balance was 1682 6s. 4d.; but this was reduced by a call, realising 1439 10s. 1d., and the balance now against the mine is 1390 4s. The CHAIRMAN added that every farthing of expenditure was charged up in these accounts, so that the adventurers knew their exact position.

Captain JAMES, in reply to a question from Mr. DINGLE, said he was scarcely prepared at present to say when the great flat lode would be cut; that, of course, would depend upon circumstances. If the lode was thrown up it would be found in the cross-cut earlier than in the shaft; but if it had gone down it would be found sooner in the shaft. In the adjoining mine all the stuff coming from the 154 produced $\frac{3}{4}$ to the ton, and if they could get stuff like that in South Frances it would yet be the leading mine in the district.

Captain WILLIAMS stated that since the last meeting he had been underground, and he believed that the chances of South Frances were very good indeed, and he did not know but what Capt. James's remarks would be borne out by actual experience, that South Frances would yet be the leading mine in the district. His own belief was that Capt. James had as much right, and indeed more, to say that there was a "heave" in the lode as any other man had to say that the lode had gone down, because precisely the same indications had shown themselves in West Basset, the adjoining mine. Whether the veritable great flat lode would be cut in the cross-cut that was now being driven he did not pretend to know, but he gave it as his opinion that in that cross-cut there was something effecting a considerable amount of change in the granite, which totally altered it from the south side of the shaft. The granite was mixed up with peach, or chlorite, and was comparatively soft. There certainly was a most decided change for the better. He had been underground in most of the neighbouring mines, and he had no hesitation whatever in saying that the prospects of the mine were exceedingly good, especially when it was remembered that the West Basset great lode came right under the whole of the South Frances sett. (Hear, hear.) He could not but regard this as a most important feature. They were now very near the point, and he, therefore, hoped that the shareholders would pay their calls with a good heart, for it would be a thousand pities that the mine should not be thoroughly developed. Looking at the statement of the accounts, at the small amount of cost at which the mine had been carried on, and at the probability of a great discovery, when that discovery was made and the lode was fairly reached he thought the mine was likely to produce as large a margin of profit as any mine that he knew of. (Hear, hear.) He proposed that a call of 3s. per share be made, and he hoped the adventurers would heartily respond to it. Mr. LIDDEY seconded the proposition, which was carried unanimously.

A short discussion ensued as to the disposal of the relinquished and forfeited shares at present in the hands of the company. It was explained that Capt. James had been unable to place them at 10s. per share, but there was a general feeling that they should not be sold for less, Capt. Williams pointing out that the nearer they got to the lode the more valuable the shares became. Ultimately it was decided that they should be offered for sale at 10s. per share for the next fortnight.

—Western Daily Mercury.

BATTLE MOUNTAIN MINING COMPANY.

The annual meeting of shareholders will be held at Liverpool, on Wednesday, when the following report will be submitted:—

In presenting the accounts for the year ending June 30 your directors have much pleasure in referring to the very substantial improvement shown as compared with the previous year. The last account showed a loss of 2489 2s. 5d., while the present shows a profit of 3462 0s. 11d. The produce of the mine from July 1, 1874, to June 30, 1875, was—

	Sacks.	Tons c. qr. lbs.
1874.—Aug. 10, sold at San Francisco	783	40 9 2 23
Nov. 20, shipped per Cornwallis	848	49 15 2 9
Dec. 4, J. Gambles	1,114	58 13 3 5
1875.—Jan. 13, Matterhorn	2,170	124 3 1 16
Jan. 20, " Cartale	1,107	65 3 3 18
March 12, " Rance	1,111	59 5 3 9
April 6, sold at San Francisco	1,082	58 12 3 17
April 22, " "	1,100	58 1 0 8
June 30, waiting shipment	3,988	213 10 1 12
Total	13,315	725 16 2 5
Less waiting shipment, per last report.	700	37 4 1 2
	12,615	688 12 1 3

Showing an increase in the quantity raised of 284 tons. The quality of the ore continues to improve with the deepening of the mine. The last lot was sold at San Francisco at \$3.40 per unit, upon the extremely satisfactory assay of 42 3/4 per cent.

The report from the agent states fully the present position of the mine, and the progress made up to the date thereof. For the purpose of testing the correctness of his views, an independent mining engineer was sent to the mine from San Francisco, and his report, just received, generally supports Capt. Richards's views, but recommends that no machinery be purchased until the mine be further tested to prove the probability of obtaining an increased supply of water there or elsewhere.

Regarding the future, your directors again refer to Capt. Richards's report, confirmed by the San Francisco engineer, that the second-class ore will be worth after dressing \$260,000. The bringing of this portion of our property into play depends on procuring a sufficient supply of water, and this the board are using their best endeavours to accomplish. When water is obtained a considerable expenditure will be required for machinery to raise and dress the ores, and the shareholders will have to be asked to take up the balance of the debentures authorised to be issued at the special meeting in June, 1874—say, 3750—only 1250, having been taken up. Two directors, Messrs. Campbell and Nancarrow, retire by rotation, and being eligible, offer themselves for re-election.

*For remainder of Meetings see to-day's Journal.]

FOREIGN MINING AND METALLURGY.

Official Belgian returns show that in the first eight months of this year Belgium exported 2,637,000 tons of coal, against 2,421,000 tons in the corresponding period of 1874, and 2,843,000 tons in the corresponding period of 1873. During August the exports expanded 46,000 tons, as compared with August, 1874, and 14,000 tons, as compared with August, 1873. Some revival would thus appear to have taken place in the foreign demand for Belgian coal. The exports of coke from Belgium in the first eight months of this year also exhibited an augmentation of about 120,000 tons, as compared with the corresponding period of 1874. The imports of coal into Belgium in the first eight months of this year were 433,000 tons, against 239,000 tons in the corresponding period of 1874, and 404,000 tons in the corresponding period of 1873. The increases observable in the imports is attributable to the larger receipts of English coal, 205,000 tons having been received from Great Britain in the first eight months of this year, as compared with 123,000 tons in the corresponding period of 1874, and 98,000 tons in the corresponding period of 1873. The imports of coke have increased 5000 tons, as compared with the corresponding period of 1874, but they show a decrease of 10,000 tons, as compared with the corresponding period of 1873. Coal has been hardening in price in Belgium, and a small advance has now been established. The working miners resist the reductions which are being attempted in wages, but they generally consent to them in the end.

Coal of the best quality has lately been found in large quantities in Western Colorado, the veins varying in thickness from 20 to 50 ft. Large beds of iron have also been discovered.

Several journals have published an interesting letter by M. Chagot, director of the Blanz Mines, on the subject of the extension of coal mining operations in the North of France. M. Chagot shows that official severity will not increase the number of disposable workmen, and that it would be useless to divert those engaged in productive mining pursuits to preparatory operations. Coal quotations are supported with firmness, but they exhibit no upward movement worth mentioning. The year has been a favourable one for many industries, but metallurgy is an unfortunate exception to this remark, and metallurgy is, of course, the largest coal consumer. There is a good current of business in coal, and prices have exhibited a tolerable amount of firmness, but there is, nevertheless, little significance in the current aspect of business. The weather has been comparatively fine in France, and this circumstance has somewhat checked orders for coal for domestic consumption. Coke has sold rather badly, and prices have been to some extent nominal.

Belgian industrials appear to have generally some hope as to the future, and, with some rare exceptions, the prices quoted last week for iron have remained without variation. The English appear to be becoming better clients of Belgian industrials. One English house alone is stated to have taken nearly 1000 tons of Belgian iron during September. Some comparative trials with English and Belgian iron have been made in England, and the quality of the Belgian iron has been pronounced good. Belgian pig has not maintained its price very well, notwithstanding the firmness of pig in England and the Grand Duchy of Luxembourg. Plates have continued in good demand. The Belgian rail mills have a certain

number of orders on hand, and they are assured employment for some time to come. A contradiction is given to a recent statement that the administration of the Belgian State lines had decided to order 20,000 tons more steel rails in consequence of the advantageous terms of the last adjudication of such rails. The Acoz Forges Company has obtained an order for 5000 tons of iron rails, to be delivered to the Belgian State railways, and also one for 2000 tons, to be delivered to the company for working the Netherlands State railways. Bars have been quoted at 6 1/2 ls., and girders at 7 1/2 ls. per ton. Refining pig has sold on an average at 2 1/2 ls. per ton. The imports of minerals into Belgium in August are officially returned at 72,115 tons, of which 55,000 tons came from the Grand Duchy of Luxembourg, and nearly 8000 tons from France. Rough pig was also imported into Belgium in August to the extent of 9410 tons. The exports of rails from Belgium in August were 6525 tons, the principal consumers having been Spain, Italy, Russia, and Switzerland. The quantity of plates exported in August was 3890 tons, of which 1623 tons went to England, 917 tons to Holland, and 709 tons to Russia. The exports of merchants' iron from Belgium in August amounted to 10,530 tons, or 2200 tons more than in August, 1874, and 3727 tons more than in August, 1873. England purchased 1637 tons of this merchant iron; Russia, 2116 tons; and China, 1692 tons. The total quantity of manufactured iron of every description exported from Belgium during August was 23,258 tons, of which England took 3696 tons. During the first eight months of 1875 England purchased from Belgium 22,410 tons of iron; the Low Countries, 26,360 tons; France, 17,600 tons; Switzerland, 16,221 tons; Italy, 8940 tons; Turkey, 7780 tons; and the Zollverein, 14,860 tons. The efforts of Belgian industrials to develop foreign business have thus been not altogether without result.

Orders for iron have slightly increased in importance in France. It is true that prices have not advanced and that profits are small, but foremasters are hoping for an early improvement. Refining pig is in great demand; for casting pig, however, there have been some pretty well sustained orders.

Business in copper has been quiet at Paris, and prices have experienced little variation. The German copper markets have been colourless, business has been very quiet, and prices have remained without variation. At Rotterdam the tin market has continued very quiet, and business has been in a languishing state. So ne hundreds of ingots of Banca have been purchased at 53 fl.; for delivery in November, 52 1/2 fl. has been paid. The demand on consumptive account has been comparatively small. Some small transactions have taken place in Billiton at 50 1/2 fl. to 51 fl. Banca, delivered at Havre or Paris, has made 95s.; Straits, 91s.; and English, delivered at Havre or Rouen, 90s. per ton. In Germany business in tin has not experienced any material variation. At Paris, French lead has made 24 1/2 s. per ton; Spanish, 24 1/2 s.; and German, 24 1/2 s. per ton. The German lead markets have been quiet. Business in zinc has been restricted at Paris; prices have remained without material variation. Silesian has made 26 1/2 s. per ton, and other good marks 26 1/2 s. per ton. Rolled Vieille Montagne zinc has risen to 34s. per ton. Upon the German markets zinc has been generally firm.

QUICKSILVER REDUCTION IN CALIFORNIA.

The apparently unavoidable loss of mercury in the ordinary processes of reduction led M. Von Paterna, the Austrian State chemist, to make careful researches in an entirely new direction, with the hope of providing a remedy, trying, in the first instance, two wet processes, and then attempting a complete re-modelling of the old one. The first wet process consisted in the conversion of the cinabar into sub-chloride of mercury by chloride of copper, the sub-chloride being subsequently dissolved with hyposulphite of soda, and re-precipitated as pure cinabar by sulphide of sodium. The second process was founded on the solubility of cinabar finely powdered in a concentrated alkaline solution of sulphide of sodium, from which an excess of water precipitates it again. Both processes being very slow, demanding much attention, and being, moreover, rather expensive, have failed to come into general use, and there was a similar objection to his modification of the dry process. There was less loss, but it was difficult to manage, and the expenses were considerable, on account of many hands being required for charging and discharging the retort, the iron of which was also much corroded by the combined action of hot damp air and sulphurous vapours. In California, says Dr. T. P. Sieveling, in an interesting communication to the *Mining and Scientific Press* of San Francisco, experiments have been almost constantly carried on with a view to improve upon the European processes of reduction. The retorting process being slow and expensive, and demanding, moreover, a close attention, has been sparingly employed, and almost exclusively on very rich ores.

The first improvement in California was the Almaden furnace, which allowed to handle big quantities of ore in enormous furnaces where, under the combined action of heat and air, the reduction was effected. These furnaces, where the hot gases from the combustion of wood entered through pigeon-holes into the closed ore chamber, and where the quicksilver vapours went out into condensation chambers through a second series of pigeon-holes opposite to the first, have several disadvantages. The furnace does not work continually, and has to be cooled down every time a charge has been burned to allow the extraction of the refuse and the re-charging. Thus a good deal of heat and time is lost, and moreover, there being a strong draught required, the quicksilver vapours are but imperfectly condensed.

Under these circumstances it was natural that experiments were made for improvement, and that continuous working furnaces were constructed. Of these, two different kinds have been tried and are actually in operation. The first class embraces all those where the combustion of the fuel takes place in a separate space from the ore chamber; the second, those where the fuel and ore are mixed. To the first the Luckhardt, Green, Knox, Osborn, and Janin processes belong. The general principle of those furnaces is the same. The ore is introduced at the top and the refuse extracted at the bottom, the ore being exposed to the action of heat while it slowly descends from top to bottom, and the quicksilver vapours carried through a system of condensers by the action of a ventilator. The differences consist in the number of fire-places, the means of communication employed between them and the ore chamber, the regulation of air and access, and the extraction of the vapours, leaving aside the difference of size as immaterial. All of these furnaces, if rightly constructed, offer nearly the same advantages and disadvantages. They allow the working of large quantities of ore with but slight expense, and do not demand so close an attention as the retorts; but, as in the case of Von Paterna's furnace, they are not without defects, it being almost impossible to regulate the heat to the required nicety.

It is impossible to ascertain in California the exact loss of quicksilver, as up to the present time samples of ore have not been taken from a single establishment before using it, but it can be surmised that the loss will be very near equal to that experienced in Idria, as the conditions are nearly the same. The furnaces in which the ore is mixed with coke is used give only the same imperfect results. Dr. Sieveling considers that the uncertainty about the losses makes it extremely difficult to introduce a new, though more perfected, system in California. The mines which produce a profit to their shareholders generally content themselves with the system they employ, and are not very much disposed to changes, while companies whose mines are not yet producing generally dread the expense of any experiment, warned by many failures in former times. He, however, does not hesitate, he says, to call public attention to his own system, which avoids most of the disadvantages mentioned above, while it has the great advantage of entirely avoiding the possibility of quicksilver poisoning.

If cinabar finely powdered is subjected to the action of a solution of subchloride of copper in salt water in the presence of copper, or an alloy of copper or zinc, the quicksilver is reduced to its native state, and combines with the copper, forming an amalgam from which it is easy to extract the quicksilver afterwards. Experiments made with ores from the New Almaden Mine, American Mine, Sulphur Bank Mine, and Rattlesnake Mine have shown that the loss of quicksilver is very small, 5 to 2 per cent. when the ores are reduced to a

fine powder. The ores are introduced into a wooden barrel, the solution poured on it in a warm state, the copper introduced, and the barrel allowed to turn for 12 hours, when if the right conditions are observed the process will be completed. The separation of the amalgam is afterwards effected in the same way as in gold and silver mills. Of the expenses of the process the grinding of the ores and the loss of copper form the prominent items. The grinding remains the same always, but the loss of copper depends entirely upon the amount of mercury contained in the ores, and may be calculated at about 40 per cent. of the weight of the same, placing the value of copper in proportion to that of mercury as 1 to 4 is equal to 10 per cent. of the value of the latter.

TECHNICAL EDUCATION IN CANADA.

Although the proposition to add a Department of Mining Engineering to those already existing in the University of King's College, Nova Scotia, has not yet been adopted, owing to certain temporary obstacles in the way of carrying out the recommendation of the committee appointed by the Associate Alumni, the efforts observable during the past few years to provide sound technical instruction have not been in any degree slackened, and a glance through the examination papers can leave no doubt that they will bear favourable comparison with many establishments which are only carried on at a very much higher cost to the students. That the thoroughly practical character of the examination for the diploma in Civil Engineering may be appreciated, it will suffice to notice a few of the questions, remarking by the way, that the papers from which they are taken are of more than usual length. Taking three of the twelve questions in the paper on "Surveying, Levelling, and Mensuration," it will be seen that they are precisely such as are likely to occur to the student when he goes into practice. The question:—"Given the dips and strikes of two lodes, find the dip and strike of their intersection"—will thoroughly test the student's knowledge of a most important rule. Again—"An equilateral triangle is marked out on the ground, bore-holes are sunk at the vertices of the triangle until a bed of coal is reached; find the dip and strike of the coal, the depth of the bore-holes being 50 ft., 60 ft., and 70 ft. respectively, and the side of the triangle 100 ft."—is a question with which no fault can be found as being too theoretical. Whilst another is—"Having to effect a survey of a harbour, explain clearly and exhaustively the different operations in their respective order." That students who have gone through a course of instruction which will enable them to answer with facility such questions as these must be well fitted to attain proficiency in their profession with considerably less practical training than those depending on practice alone is beyond question.

Turning to the papers on Inorganic Chemistry, and in Mineralogy and Geology, the questions are of an equally practical character, such, for instance, as "How many oxides does manganese form; describe the uses of the most important ones?" "Give an account of the use of the blowpipe in distinguishing minerals." "Compare blende and tinstone." "Describe the ores of iron, and state which are found in the province, and in what localities?" "Name and describe the ores of copper?" "Give a sketch of the geology of Nova Scotia;" and so on. In the "Natural Philosophy Applied" paper, the first question asked is "How many bushels of coal must be used in a day of 24 hours in raising 150 cubic feet of water per minute from a depth of 100 fms., the duty of the engine employed being 60 millions?" This is followed by "Express the horsepower of an engine in terms of the evaporation, diameter of cylinder, and velocity of piston; hence show that the useful effect is increased by increasing the load, although the velocity is diminished. Diameter of cylinder 17 in., evaporation of boiler 0.67 cubic feet per minute; velocity of piston, 250 ft.; calculate horsepower, steam cut off at half stroke, engine being supplied with a condenser, and ten others of equal utility. Indeed, the utilitarian character of the entire course of instruction is everywhere apparent, for even in the preliminary engineering examination, which must, of course, be passed by all students, there is the condition attached to each of the modern language papers that the candidate must be able to translate ordinary English prose into the foreign language, to read and translate correctly and fluently, and to show some readiness in conversation—the latter condition being one that is so frequently neglected amongst Englishmen, that many who have long studied a language, and even received honours for proficiency, are utterly unable to converse upon the most simple subjects of every-day life, except in their mother tongue. To judge from the papers set, the instruction both in philological and pure mathematical subjects is of a decidedly high class.

The University is evidently doing its utmost for the education progress of the province, and it may be hoped that before the time arrives for the issue of the next Calendar the Collegiate School at Windsor may be doing more to prepare students for the College, so that the whole teaching power of the organisation, which is ample for the requirements of the province, may be thoroughly utilised, and that the Incorporated Alumni will not again have to complain of the lack of information existing relative to the educational advantages offered at Windsor, the result being that eligible students have been sent to more distant universities, where a similar character of education can only be obtained at vastly greater cost.

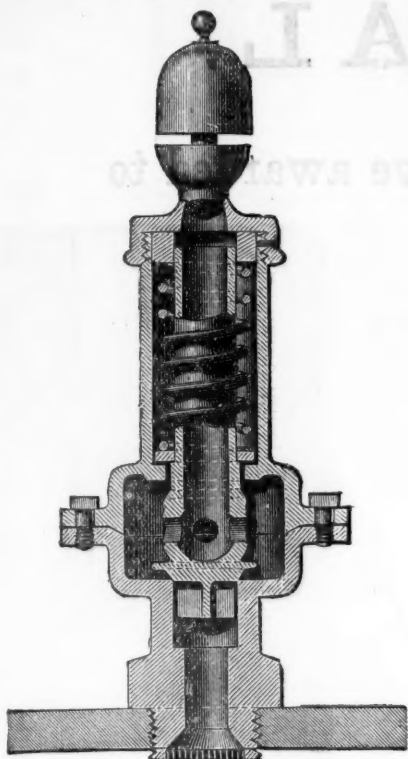
It is gratifying to find that members of the Church of England have already expressed their entire readiness to do all in their power to further advance the interests and prosperity of the College, which, from the liberal clauses in its statutes relating to other than theological students, might safely be availed of by the Protestants of the province of every denomination as an institution capable of affording their sons a high class of education, which could not fail to be of the utmost benefit to them in after life.

MINERAL RESOURCES OF SOUTH AUSTRALIA.

The Lady Alice Gold Mine is now regarded not merely as a paying concern, but as an exceedingly rich and productive mine. The discovery of the Lady Alice Mine was made by Mr. James Goddard about five years ago, and the great richness of the surface led him to think that he could work it without any help beyond that of his son and two other men. For some little time they made more than good wages from the gold, but as the reef went down they found it impossible to keep the shaft dry by means of windlass. The work was then stopped for some time, Mr. Goddard, however, still believing in the richness of the reef as being sufficient to pay all cost of working as the work proceeded; but it was found that machinery must be procured, and to do this capital was necessary. After some time certain Gawler gentlemen, who had faith in Mr. Goddard and in his mine, came forward and provided funds to assist in procuring the means of going on with the work; but though the reef was a good one, and gold-bearing, more capital than these gentlemen cared to supply was found necessary. Eventually a company was formed in 1872, when the mining mania was strong in Adelaide, and very soon shares on which only 5s. had been paid were sold for 6s., and in some few cases at even higher rates. About 2000 ozs. of gold has been obtained from ore averaging 13 dwts. per ton. The value of the gold alone has exceeded by nearly 700% the total capital paid-up, and the profit on the last year's working was 1895 12s. 6d. A dividend was paid on November 10 last of 1s. 8d. per share on 6000 shares, and of 8d. per share on 600 of the new issue. A second dividend declared of 2s. on the original and 1s. on the new shares, payable March 6, and we believe this rate of dividend might easily be kept up every two months instead of four.

The workings of the mine are at present limited to a comparatively small space, 100 ft. in depth, about the same from north to south, and less from east to west; but they are being extended north and south on the course of the reef, and also in depth. As the company have 400 yards in length to work upon, it will readily be seen that a great future is before the mine. An experienced mining captain from Moonta lately visited the Lady Alice, and expressed his astonishment at its richness. He thought most highly of the copper ore, which, indeed, is very valuable (50 per cent.), and increasing, as well as the gold, as it goes down. He pronounced it to be "the richest mine in the colony." At the present rate of working the net profit would be about 14,000l. a-year. The last five weeks' work shows a profit of 1400l. There is room for at least double the number of hands at present employed, and the more powerful machinery could be erected without even making a call. We believe it to be so now that the new hauling machinery delivered the other day. The Try Again, the Hamlin, and other mines in the neighbourhood, and on the same line of reef, are quite likely to turn out eventually as good as the Lady Alice. Altogether this mine may be regarded as a splendid discovery, valuable not only for the returns it will yield to the enterprise and industry of those who found and first worked the reef, and the patience and perseverance of the shareholders, but also as likely to stimulate other prospectors and mining investors to thoroughly promising ground, instead of abandoning it because of a few disappointing trials.

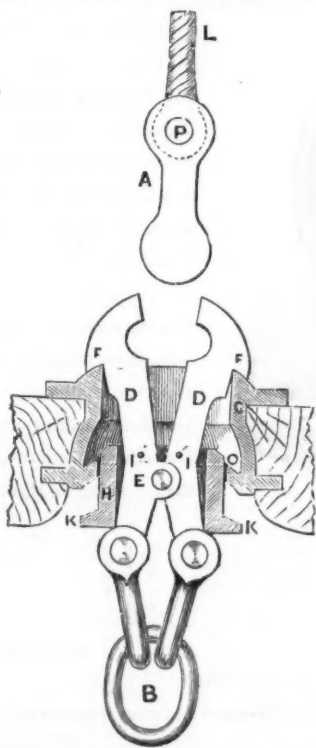
PREVENTING BOILER EXPLOSIONS—THE STEAM SENTINEL.



It is so frequently stated that boiler explosions are invariably the result of neglect or carelessness that considerable attention has been given to the steam sentinel invented by Mr. John Smith, and at present being introduced by Messrs. W. L. Thompson and Co., of Queen Victoria-street. The apparatus, the minutest details of which can be readily understood from the above diagram, is a simple and compact little instrument, combining a safety-valve which cannot be tampered with, a maximum pressure-gauge, and a reliable alarm. The several parts are so completely enclosed that they cannot be injured by the evil disposed, and are not at all liable to get out of order, whilst the sentinel has the further very great advantage that it can be affixed to any steam-boiler in a couple of hours by simply drilling and tapping a hole through a plate and screwing it in. With the sentinel in use a very effectual check is provided against the ordinary pressure-gauges and safety-valves, and in case of inattention on the part of the attendant, or any attempt to overload the usual valve, the continued whistling of the sentinel makes the fact known throughout the works, and nothing can quiet the tell-tale until the pressure of the steam is properly reduced.

The very general opinion among practical men seems to be that the security afforded by such an instrument would effectually prevent every explosion except those resulting from absolute wear of boiler-plates, which can only be avoided by systematic and periodical inspection. So long as the maximum pressure fixed upon is not exceeded, the sentinel requires no attention whatever; indeed, the attendant need not even be informed that it has been placed upon the boiler, but immediately the steam exceeds the proper pressure the conical valve is lifted, and the steam rushes through the vertical tube shown within the spiral spring and sounds the whistle. The apparatus has been extensively adopted, and in every case has given complete satisfaction.

WALKER'S PATENT DETACHING HOOKS FOR THE PREVENTION OF OVERWINDING.



The prevention of accidents arising from overwinding, as also from breakages of ropes, &c., has for many years engaged the attention of mining engineers and inventors. By a careful search through the Patent Office records we find that from the year 1800 to 1875 more than 80 patents have been granted bearing on these two subjects. Of this number 35 apply to the breakage of ropes, &c., 26 to overwinding, and the remainder to both objects combined. In this apparatus prevention of overwinding only has been aimed at, though this appliance may be supplemented if required by any approved form of arrangement for arresting the fall of the load in case of breakage of rope, &c., without in any way interfering with the action of the hook.

Recent legislation has done much to lessen the probability of overwinding, and it is undoubtedly true that there are now less accidents (at any rate of such a nature as would be reported in the official returns) than in former years. But it must be borne in mind (whilst improved apparatus, stricter oversight, and more stringent rules, have led to this satisfactory result) that mineral products are now being brought to bank from depths, and consequently at speeds, almost unknown only a few years ago. The slightest error, therefore, either in judgment or want of attention, culpable negligence, mis-

take of position of load in the shaft, or sudden illness, may leave great chances of overwinding, in spite of the great improvements that have undoubtedly taken place.

Assuming, therefore, that overwinding must still continue to be a source of accidents more or less frequent, and that it is desirable to adopt such appliances as will render such accidents, humanly speaking, impossible, we will now state generally the qualifications of a good detaching hook and its attendant apparatus.

1.—It must be absolutely certain in its action under any circumstances.—2. Its mechanical construction may be such as shall, in the act and at the moment of detaching, throw the least possible burden or strain upon the rope and tackle over and above the ordinary strain or burden.—3. It shall not be possible with ordinary oversight, such as the law compels, that in the event of a partial pull through the hook shall dangerously release its load.—4. It shall be so constructed as not to be liable after long ordinary wear to impose a greater burden or strain on the rope at the time of detachment than if such detachment happened when the hook was first put on the rope.—5. It should be thoroughly well made of the best materials, the strength of the parts well considered in relation to each other, and should be tested to a proof sufficient to leave a good margin for sudden and unforeseen strains.—6. It should be reasonable in price, and should not be an expensive apparatus to set up. The winding-rope is attached to the shackle, A, and the load to the connecting link, B. The supporting ring, C, which is also the disconnector, and through which the rope is constantly working, is a fixture between two oak baulks or iron girders at the pit top, immediately under the pulley or winding-wheel, the baulks or girders being carried by the upper "bay trees," or other suitable framing. The hook itself consists of a pair of jaws or bent levers, D D, working on a centre pin, E, in such a manner that the weight of the load has a tendency at all times to open the upper ends of the limbs, which ends clip the strong central pin of the shackle, A. The upper limbs of the levers are provided externally with undercut jaw hooks, F F. The levers or limbs are held together, and made to retain the shackle pin by means of the clamp, H, which is held in position by the copper pins, I I.

In case of overwinding the jaw hooks, F, D, E, held together by the clamp H, pass freely into the ring C, but the horns or projections, K K, of the clamp, H, coming into contact with the bottom of the ring, C, hold the clamp stationary whilst the jaws are being pulled through the ring, C, the result being that the copper pins, I I, are sheared off, and the jaw hooks released from the restraint of the clamp. The internal diameter of the ring, C, being only a trifle greater than the width of the outside of the jaw hooks, F F, the shackle and pin are now under the restraint, not of the clamp, but of the ring, C, and they will remain so till the jaw hooks reach the top of the ring, when, by the action of the weight of the load itself, they immediately hook on the projecting web or fillet, C, of the ring itself, leaving the load safely suspended, and the rope and capline harmlessly liberated. We proceed now to show how the hook fulfills the conditions previously laid down:—

1.—Then the jaws will open at a quick or slow overwind the moment the hooks have reached the top of the ring, for the load is waiting, so to speak, for release. Should the hook become, through want of reasonable attention, rusted or bound together, and the jaws in consequence not opened by the weight of the load, the clamp, H, coming into pressure contact with the limbs of the jaw hook (a little below the point, E, of the hooks, F D E) would at once force open the jaws and release the pin and shackle, A. Further than this, the top inside of the shackle pin eye is slightly rounded off so as to ensure the immediate action of the shackle pin on the jaws whenever the clamp has been drawn down. In some forms of detaching hook momentum is an essential condition for successful working, in this hook it is not at all an indispensable element.

2.—The rope, &c., has in this case but to stand the small additional strain or burden (over and above its usual load) of drawing the jaw-hooks through the clamp, H, and as this draft is along parallel surfaces, the resistance is reduced to a minimum. In some appliances, besides the load not assisting in the work of detaching, the rope has to bear the heavy additional strain of closing two or more wedge-shaped plates upon themselves, and in some cases the rope has also to stand the strain due to the lifting one or more, D, link pins, which carry the weight of the load out of one recess into

into another before the release and locking can take place. At a slow overwind, and, consequently, with no momentum to assist the rope, it becomes a question as to satisfactory working of the hooks.

3.—In the event of the hook being pulled through the ring, C, so far as to have cut off the copper pins, I I, and to have dropped the clamp, H, but not far enough to have brought the jaw hooks clear of and above the top of the ring, and supposing that at this point the engineman stops his engine, and from some cause or other allows his engine to "set back," then the jaw hooks will open into the lower part of the supporting ring, and remain fixed at the point O, the load remaining as safely detached and suspended as if a complete pull through had taken place. This would not have been the case under these circumstances with some of the older appliances.

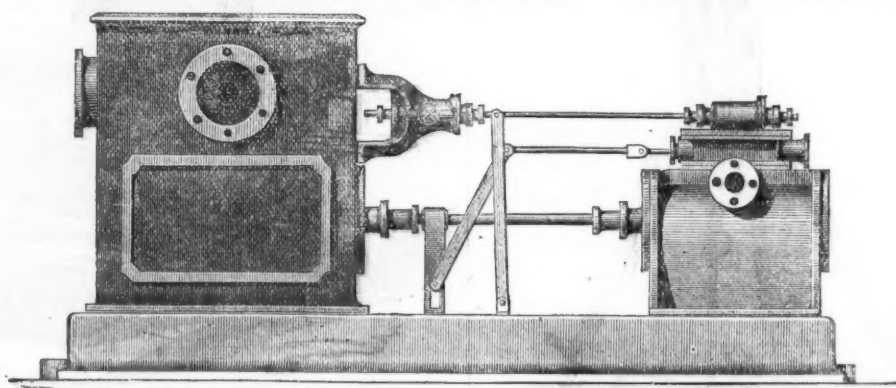
4.—The recesses referred to above, as also the slot in other arrangements, are liable in the course of time to become deepened by wear, and consequently a resistance always accumulating has at the critical moment to be overcome. In Mr. Walker's hook this, as is obvious, cannot happen, for as the hook wears the shackle pin is working its way to the point of exit, and is really adding to the certainty of the hook's action. Again, the resistance arising from the rusting up through inattention to and neglect of ordinary inspection of the working parts of this hook is certainly much less than any other hook that has preceded it, for if the whole internal area of the clamp, H, is compared with the aggregate area of the working surfaces in other hooks the difference will be at once seen. This circumstance itself goes, therefore, a long way towards fulfilling this fourth condition. They are proved at the Government Chain-Testing Depot in all cases, to double the working strain in all the sizes from 3 to 10 tons. Their cost, including the small expense in fitting them to pit frames, of ordinary construction is sufficiently small as not to deter anyone from giving them a trial.

We may mention that the use of safety or detaching hooks has been looked upon with coldness by some mining engineers and managers, on the ground that "these so-called safeguards make men careless, and accidents consequently become more numerous." They forget, however, that if an overwind occurs in connection with a good safety hook the employer has still the same remedy he always had against the winder, together with the satisfaction of having saved his property or, possibly, human life. If the proposition is true it must necessarily follow that the less safeguards are used the greater will be the freedom from accidents, or, in other words, the less precaution is taken the greater safety will accrue. Although these are not unfair deductions from the premises or proposition laid down, we scarcely think they will find favour. As to its present position, as a practical and tried invention we may mention that it has now been in constant use for nearly four years at some of the largest collieries and mines in Wales and the North of England. There are some 130 of them now in operation, and most satisfactory accounts of the working of them have been reported to the patentee and makers. The endurance and unappreciable wear of the copper pins (in some cases during a period of 12 months) has also been the subject of highly satisfactory communications from colliery owners and others.

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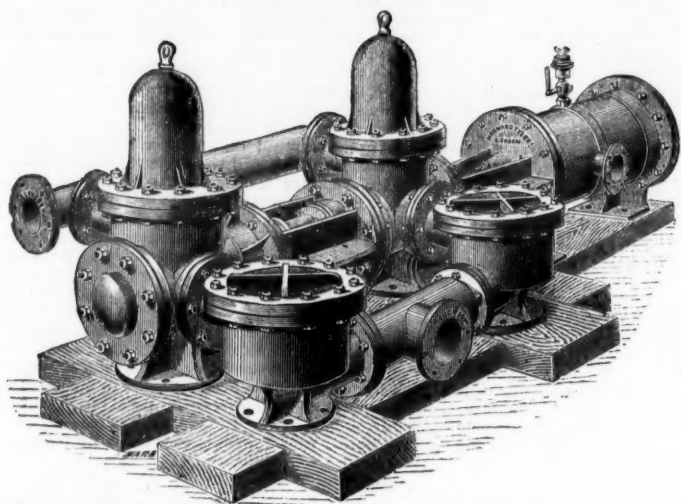
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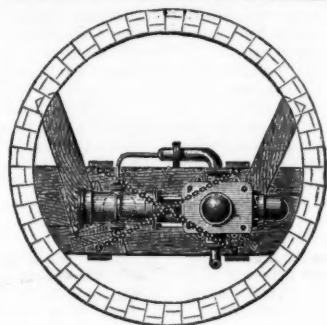
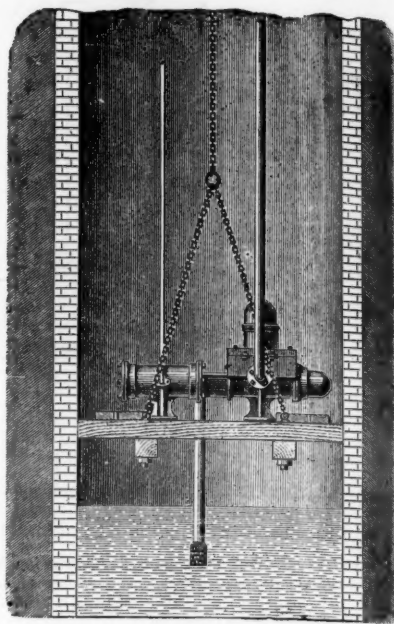
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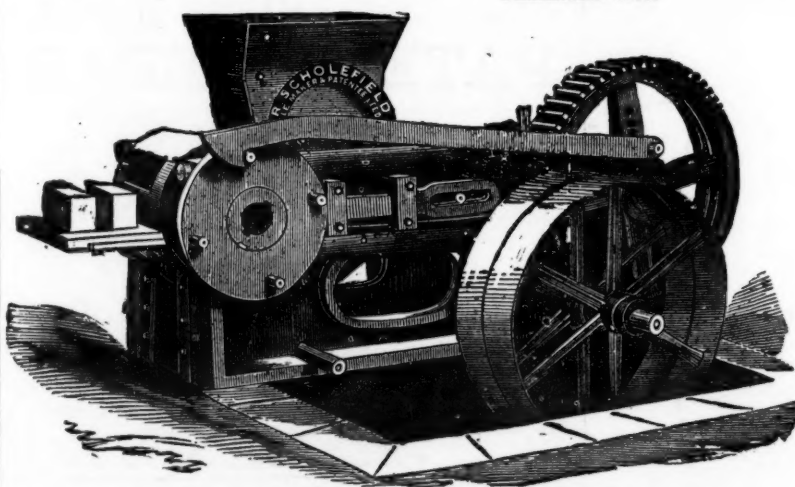
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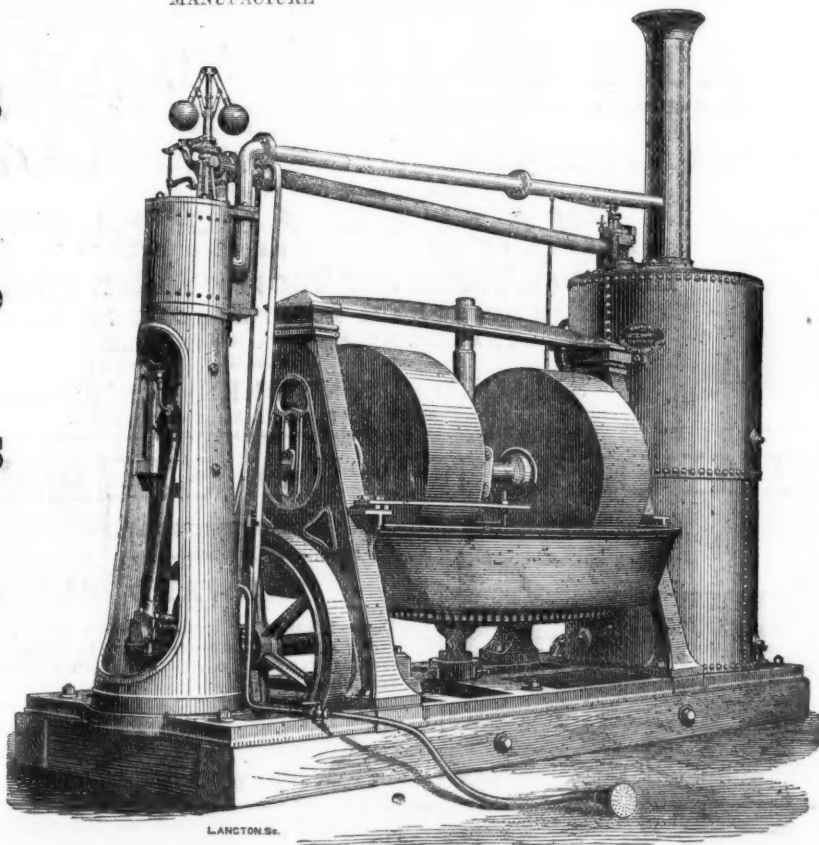
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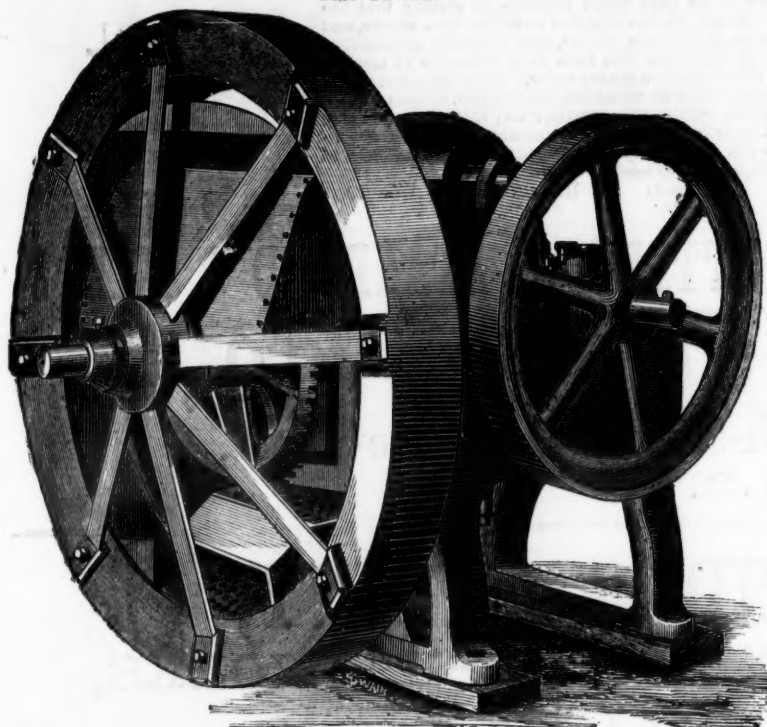
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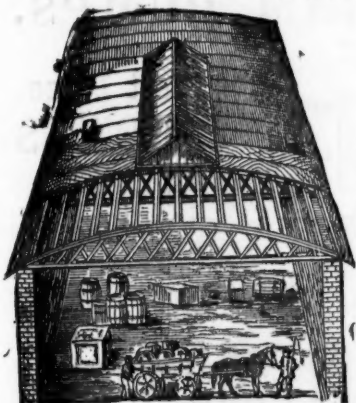
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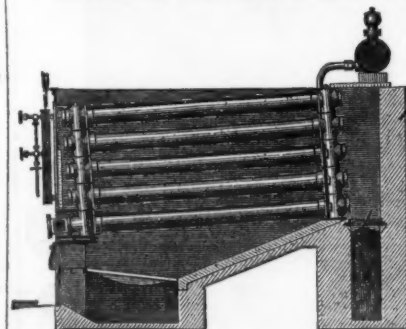
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